VOL. XII NO. 25 CHICAGO, DECEMBER 19, 1907 $2.00 PER YEAR

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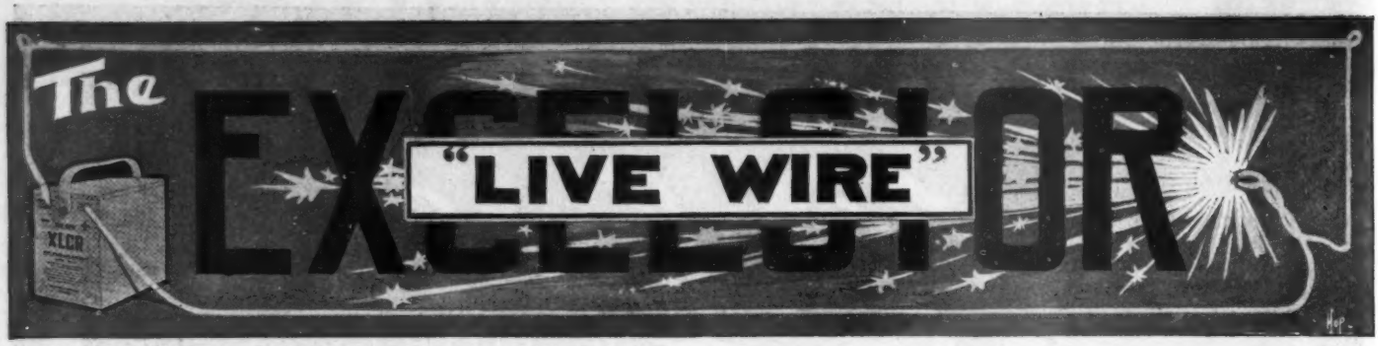


VOL 1 CHICAGO, DECEMBER 12, 1907 No. 1

Published Every Thursday by

The Excelsior Supply Company

Manufacturers-Importers-Jobbers

Main Office

233-235-237 Randolph Street, Chicago

The Aim and Intent of THE LIVE WIRE is to better acquaint Excelsior customers *everywhere* with the people they buy their goods from—meaning US.

Everybody is invited to express opinions and offer suggestions tending to increase the attractiveness and interest of this page.

Address all communications to

THE EXCELSIOR SUPPLY CO.,

Jobbers of

Everything for Automobile Dealers and Owners,

233-235-237 Randolph St., Chicago.

EDITOR.....THE ADVERTISING MANAGER

SALUTATION

Herewith we present to our friends, customers and the dealers throughout the country, Vol. 1, No. 1, of the "EXCELSIOR LIVE WIRE," —a sort of publication within a publication, as it were, the purpose and intent of which is to keep in closer touch with our old customers everywhere—and incidentally to win over as many new ones as we may be able.

"THE LIVE WIRE" will hereafter appear regularly in Motor Age every week and its aim will be to interest its readers as a personal weekly heart-to-heart talk might interest—at the same time enlighten Excelsior customers as to what is doing in general within the Excelsior household.

Get into the habit of reading "THE LIVE WIRE" and charge us up with the damages.

OUR ADVERTISING SCOOP

In the record-breaking Chicago Show Issue of Motor Age last week, the Excelsior Supply Co.'s two-color advertisement, occupying sixty-eight pages of space was the one big advertising noise of the year.

In both the prior New York show issues, the Excelsior advertisement covered fifty-six big pages, in two colors, each of which was a record in itself, which attracted the widespread attention of the trade at large, but it remained for the Chicago show effort to put the mark so high as to stand a monument to Excelsior progressiveness and originality not to be approached for many a day—if ever.

We want to take advantage of this opportunity to voice our thanks to those of our friends who so generously co-operated with us in our record-breaking effort and to reassure each again of our keenest appreciation of the confidence thus expressed in the Excelsior Supply Co. and its ability to "do things."

A RECORD SALES YEAR

During the year 1907 now drawing to a close, Excelsior sales have averaged three and one-half orders with every tick of the clock each working day. In 1906 they were less than three sales to the clock-tick. Next year they will be FIVE OR MORE.

ESTABLISHED 1876

Thirty-one years ago the Excelsior Supply Co. first flung its shingle to the winds for better or for worse. It has always been "for better"—better now than ever—and its going to be better hence than thence.

Thirty-one years of honest dealing, right prices and courteous attention to the needs of our customers means more *in sentiment* than can be explained *in words*.

It means that on our books today are men and firms who have been there as appreciative buyers for years and years—not one but what knows to the last notch of certainty that doing business with the Excelsior Supply Co. means getting a "square deal" in each and every detail.

If EVERY dealer in the United States would buy his goods of us we would be satisfied, but so long as ONE remains who has not yet tried the Excelsior way of dealing, just so long will we be after that ONE to get aboard the band wagon and become a member of the happiest Happy Family in all the world.

"Get in."

WE SELL IT

Everything you can possibly think of for the man who motors. It makes no difference what it may be—order of us and get it *quick*.

OUR MEN ON THE ROAD

Never before in the history of the Excelsior Supply Co. have we enjoyed such entire satisfactory representation on the road. Our roster of "travelers" at the present time numbers a small regiment—each man a "Live Wire" in himself—more—a dynamo.

During the Chicago show, twenty-six of these "live wires" were present at the Excelsior banquet, given at the Sherman house, Chicago, during the progress of which the general policy of the company was discussed, plans formulated for the coming year, and a real old-fashioned "get together" kind of a time in general enjoyed—surely that. Reports made by the representatives present, who came from Coast to Coast, showed that for November alone, this year's orders are 57 per cent greater than during the corresponding month one year ago. Those Excelsior travelers who were not in Chicago on this occasion will make a memorandum of the fact that each has one big feed due him "on the house" when he gets back to headquarters.

REAL SATISFACTION

It ought to be a lot of satisfaction to KNOW where you can get what you want when you want it. That is one of the Excelsior mottos and we are going to live up to it, no matter what happens.

You can't possibly hand us any order too big for our capacity and, on the other hand, no order can come too small to receive our most careful attention.

ALWAYS SOMETHING NEW

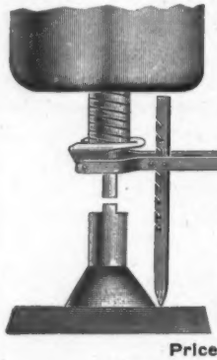
It will be our aim to show each week in the columns of "THE LIVE WIRE" one or more new things combining merit with the right price. If the crop of new articles runs out we will revert to *good* old things, but always in "THE LIVE WIRE" you may be certain you will find described or shown something worth ordering. Our word for that.

Read it every week.

THIS WEEK FOR INSTANCE—

The Triumph Valve Remover

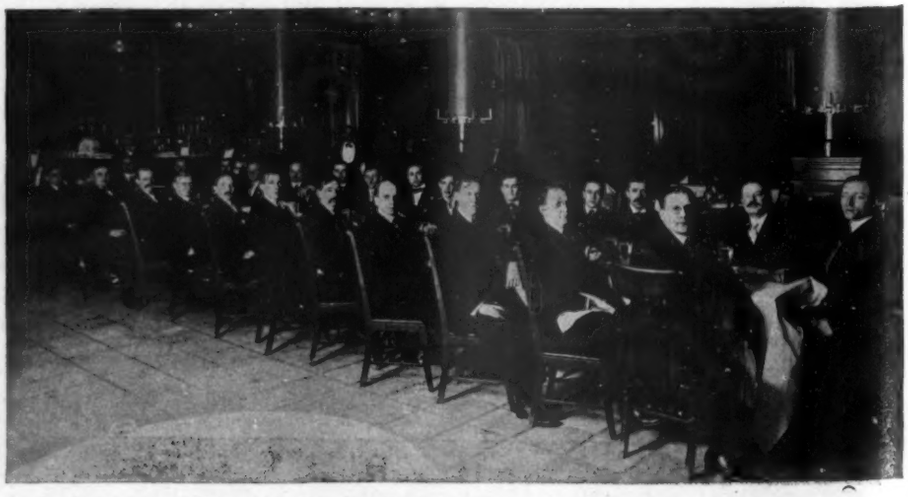
A new device that removes valves quickly and easily. Simple, ingenious, instantaneous in action, saves labor, saves time, and saves trouble. Does away with the annoyance, temper loss, and exasperation that have invariably accompanied the use of other valve removers. Enables you



to remove your valve key or spring easily, with no broken finger nails, and no side strain or bending of valve stem. Action instantaneous. Fits any gasoline engine.

Price, $1.00.

Send in Your Orders.



BANQUET OF EXCELSIOR SUPPLY CO. AT SHERMAN HOUSE DURING SHOW WEEK.

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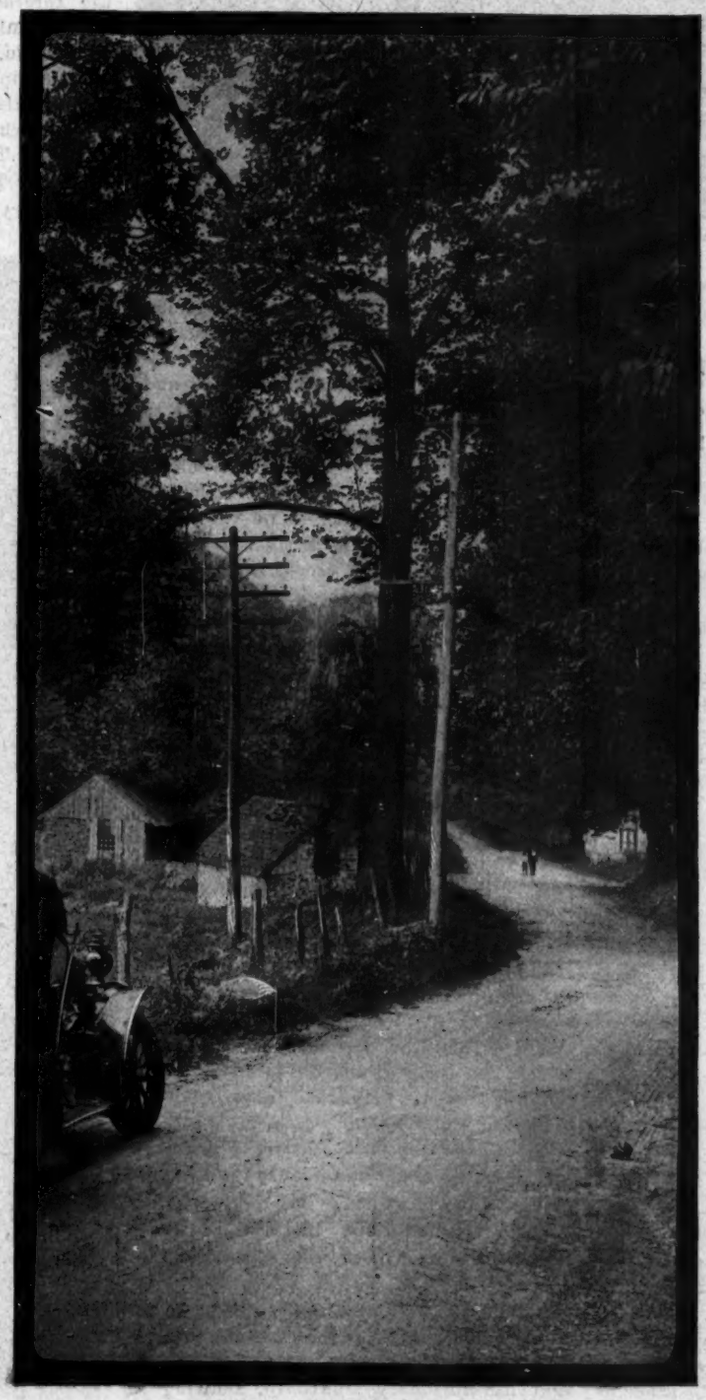

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KING OF PRUSSIA INN, A FAMOUS HOSTELRY

it behooves the toll-dodger to study the country, and seek devious byways by following which he may, at the expense of a little additional mileage, sidestep the nuisance. This is becoming a favorite amusement with Philadelphia, and in some sections the side roads have furnished equally as good going as the main and more direct routes, while the scenery, being new, and different from that which is met with in constant travel over the old routes, is usually rated much superior—an evidence that constant irritation of a man's pocket nerve will often change his views.

It was on a November Sunday that a party of Quakers assembled for their usual Sabbath-day jaunt. The question of an objective point arose, as usual.. Some one mentioned the falls of French creek, which are about 50 miles up country, with the high-tariff toll zone lying between.

"That means $1.50 or $2 toll," said Tom, who was to do the driving.

"Not on your life," said Bart, who had made a study of the topography of the country round about and knew the roads like a book. "I can show you a way to get there and back by different routes that won't cost you a cent for toll, and we'll have good to fair roads all the way."

"You're elected," responded Tom. "Jump in."

It was one of those fall days with just enough of a suggestion of approaching winter in it to make heavy wraps comfortable except at midday. The thin haze which tried ineffectually to hide Old Sol might have told the weather-wise that it would be wet before night. But this was not a weather-wise bunch, and as the car bowled merrily out Wissahickon avenue to Lincoln drive and thence Chestnut hill-ward, the weather suggested to them nothing but the beginning of a beautiful Indian summer day, such as are common in eastern Pennsylvania in early November. On reaching the junction of Germantown road and Bell's Mill road, Bart ordered a turn to the left over the latter highway, crossing the Wissahickon valley and then climbing to the Ridge road, which, as its name implies, runs along the crest of the ridge separating the Schuylkill river from its tributary, Wissahickon creek. A right turn up Ridgewood—called the King's Highway in pre-Revolutionary times, and suffering a change in name when monarchs became unpopular thereabouts in 1775 or '76—brought the expedition to Lafayette hill.

At the monument Bart ordered a left turn to Spring Mill, where a stop was made to inspect the old mill, which gives the little village its name.

Leaving Spring Mill, the route lay along the left bank of the beautiful Schuylkill, paralleling the tracks of the Reading and Pennsylvania railroads, to Conshohocken, where the river was crossed and the stiff grade climbed from West Conshohocken to the crest of the west bank. Bart had been as good as his word—good traveling all the way, and the expedition had already turned the flank of the toll-gatherers, and nothing but tax-free road aheads.

Passing Gulf Mills, which in the Sabbath quiet presented a soothingly peaceful appearance, the car speed on to the King of Prussia tavern, which is becoming a great resort for motorists, and where Bart stopped long enough to order supper for the party.

"Have it ready at 6 sharp," said he to the polite Boniface, as the car swung away from the old caravansary, with the original Revolutionary signboard, showing a rather florid-faced monarch seated on a black horse, swinging in the breeze overhead. And the p. B. nodded assent.

"I thought," ventured Tom, "that you said we wouldn't repeat on the roads."

"Neither we will. We'll come home by that route." Pointing to the left, where a fine tree-fringed road stretched away across the hills.

In 10 minutes the 4 miles to Valley Forge had been covered, but as this revolutionary shrine was an open book to the travelers no stop was made.

About a mile and a half out of Phoenixville the road bore to the left to accommodate itself to the twists and turns of a pretty stream.

The women in the party, not knowing where lunch could be procured, had had the forethought to bring along a large hamper full of good things. Just beyond Kimberton, which is one of those blacksmith shop-grocery store towns numerous thereabouts, a stop was made at a roadside spring, where lunch was spread on the ground. The five hungry mouths made quick work of the provender. Possibly their hurry was somewhat accentuated by

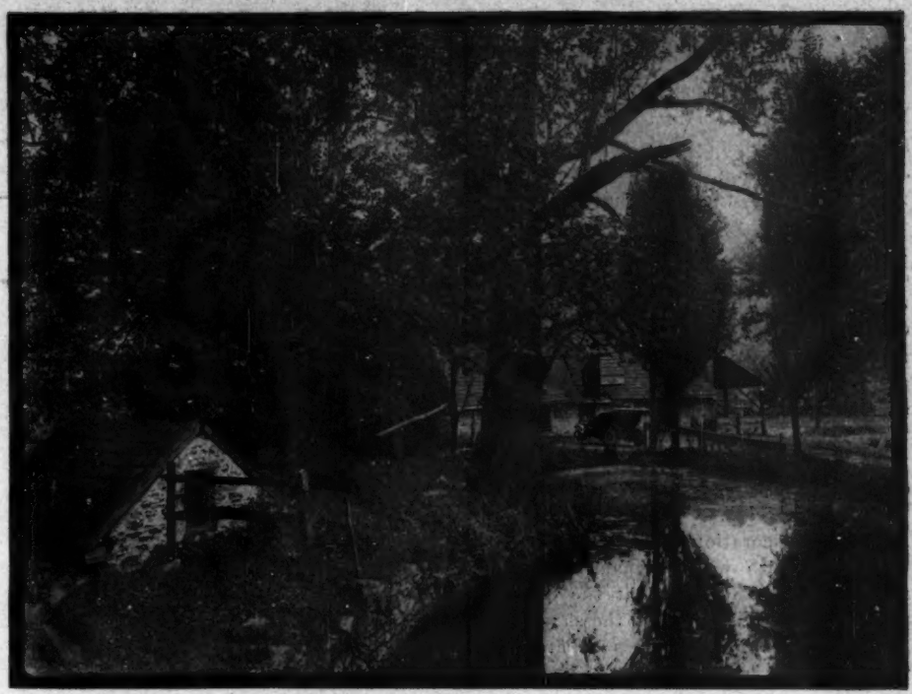
ONE OF THE OVERHANGING ROCKS

the first drops of what proved to be, after a desultory patter for a couple of hours, a veritable cold nor'easter.

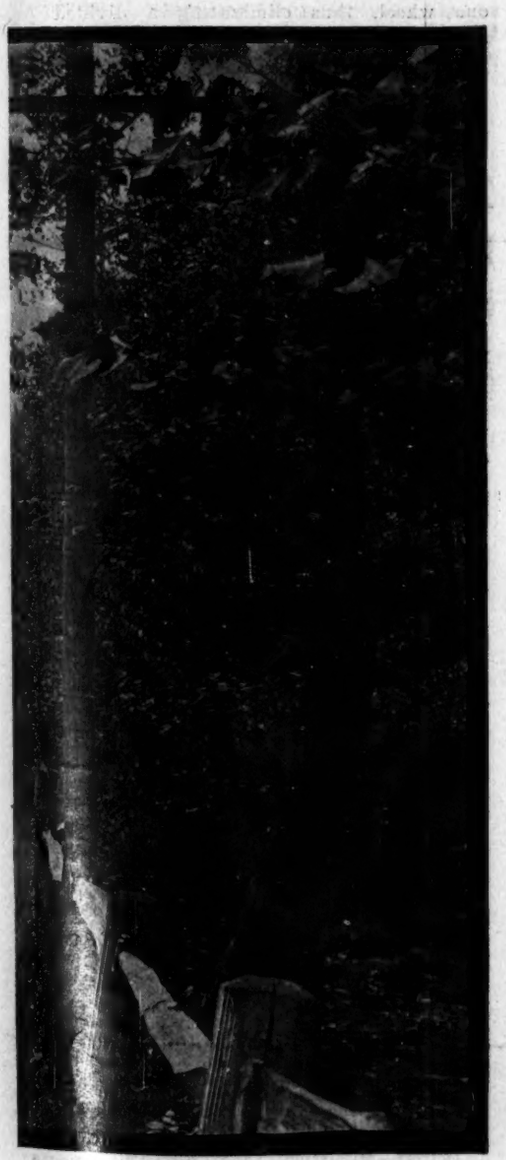
With the rain still coming down in a slow drizzle, the creek was followed to St. Peter's, through a beautiful, fertile valley, dotted with the big, well,kept, comfortable-looking stone barns which indicate the prosperous agriculturist.

The day, however, was not such as to warrant one pausing and pondering over these things, and after an hour's ramble over the slippery rocks, during which the weather conditions were rapidly becoming no better, the party scurried back to St. Peter's in a veritable downpour.

It was after 3 o'clock, and growing noticeably gloomier, before Tom cranked the engine, after discovering that the side curtains had been borrowed by someone at the garage. And the car had scarcely hit the rise out of the French creek valley before the slippery road suggested tire chains. But they were missing, too, whereat Tom uttered something which sounded suspiciously like a swear word. But despite the slippery going and the stiff grade



THE OLD MILL AT SPRING MILL, SHOWING FLOW OF WATER FROM SPRING



ALONG THE GULF MILLS ROAD

the car kept pegging away, and reached St. Mary's a little town on the ridge that resembles its neighbor in the valley—St. Peter's—so nearly as to excite remark.

Passing Warwick Furnace, where Washington had his headquarters for a while, just after the battle of Brandywine, and where much material of war had been turned out for the patriot's army, the route followed the railroad to Springfield —more oftener called Elberon—in the foothills of the Welsh mountains, where a sharp turn to the left was taken at Bart's orders. Following the Wilmington and Northern railroad, which is said to be one of the crookedest in the world, the road led to Locust Corners, where, taking the left fork, the travelers were almost instantly plunged into a country which was in marked contrast to that which they had been traversing. Houses, barns and farms there were none. The road led for miles through a waste of hilly brush land, until a downward plunge brought it alongside the placid Brandywine, the gorges of which in the growing darkness made Tom begin to think of lighting up. But an occasional opening where the creek meandered across a meadow postponed that operation for awhile. Beyond Glen Moore the creek road swaps sides with the railroad, passing through Springton, Cornog's and Dorlan's Mills.

It was just about dusk, after a ticklish journey over the slippery roads, that the car pulled into Downingtown and onto the comparative terra firma of the old Lancaster pike. Bart was wise to the fact that the first toll-gate was at Paoli, about a dozen miles below, and that it was safe to use the pike that far at least. Tom had lighted all four lamps at Downingtown, but had hardly reached the outskirts of the town before both of the gas illuminators refused to perform their office. A hasty examination developed the fact that the carbide was exhausted.

At the foot of Malvern hill Bart ordered a turn to the left, as a continuance on the pike would have brought the caravan to the Paoli toll-gate, which might easily have been rushed in such weather. But there were others below, and Bart wanted to make good on his no-toll promise. A mile north of the Lancaster pike runs the Swedesford road, and at Warren Tavern a sharp right turn was taken onto this road, which led straightaway through Howellville, Rennyson and New Centerville to King of Prussia—the road which Bart had pointed out on the outward trip.

The supper was so good and the warmth and dryth so grateful to the senses of the half-drowned travelers that it was really a shame that they should have been compelled to go out into that storm, which was now the real thing. If any of the women had but suggested the train, it is to be feared that both Bart and Tom would have jumped at the proposition instanter. But they didn't, and after making everybody as comfortable as the conditions allowed—a rubber blanket borrowed from mine host helped some—a start was made for home about 8:30. Tom had his bearings now, lamps or no lamps, and in a quarter of an hour the motor car was crossing the Schuylkill over the old covered bridge which connects Bridgeport and Norristown, where a right turn was taken into the direct road to Philadelphia via Mogee's and Barren hill. In going through Chestnut Hill Bart was careful to select streets other than those which had been traversed in the morning, and as the motor car drew up in front of his Tioga home at about 10 o'clock he said to Tom: "If you pay for the gas and supper I'll pay the toll."

ST. LOUIS ATTRACTS MANY CAR EXHIBITORS

One Hundred and Seventeen Machines on View in Second Annual Show—Scared by Fire

ST. LOUIS, MO., Dec. 15—Far more pretentious than the first one is the second annual show which opened last night in the Jai Alai building. The decorations are more elaborate than at the first show, while the display of cars is larger. In all there are 117 on view, counting in, of course, the commercial exhibit. In addition there are three motor cycle exhibits. Of this lot seventy-seven are gasoline rigs, representing twenty-eight makes; twenty-four electrics representing eight makes and seven steamers, the last named shown by the White agent. In the commercial section there are two gasoline and three electric concerns represented, showing a total of nine cars.

Uniform decorations prevail and the floor is covered with white tarpaulin. It was while decking the hall that the management got a scare last night, the show nearly being put out of business by fire. Before the doors had been opened and while the hall was being prepared, some careless workman accidentally set fire to a pile of flimsy cotton covering near the display of the South Side Auto Co. in the south end of the building. The fire spread swiftly and for a while it seemed as if the conflagration would prove serious. Fortunately, some cool-headed exhibitors rushed to the rescue with fire extinguishers and the blaze was soon put out.

Manufacturers who make their product in St. Louis are prominent in the show, the Moon Motor Car Co. having on view a line of its Moon cars. The Dorris also is prominent, as is the St. Louis Car Co. with the American Mors. Motor buggies are shown by their makers. The Success is shown by the Auto Success Buggy Co., while the Union Carriage Co., of St. Louis displays its line. Also the Jeannin company has a line of moderate-priced cars. The Mississippi Valley Automobile Co. has the Peerless, Pope-Hartford and Pope-Toledo as well as the Detroit, Woods and Pope-Waverley electrics. The South Side Auto Co. is showing the Corbin and Matheson, the Halsey Automobile Co. the Stevens-Duryea and Packard, the Ford Motor Co. its line of Fords, the Pope Automobile Co. Maxwells, the Colonial Automobile Co. White steamers, the Park Automobile Co. the Thomas, the Western Automobile Co. the Pierce Great Arrow and Oldsmobile; the American Garage Co. the Dragon, the Union Electric Light and Power Co. the Studebaker and Rauch & Lang, the Logan Construction Co. a line of trucks. Among other cars shown are the Richmond, Locomobile, Autocar, Elmore, De Luxe, Jackson and Pensylvania.

Of interest is the accessories exhibit. Demonstrations of the Jones speedometer are made by the Behen-Faught Motor Car Equipment Co., which also shows the workings of Pittsfield coils, the Carter mechanical controller, the Veeder odometer, the Auto gas tank and the Saxon lamp and generator. Also shown by this concern are the Bowser carbureter, Gray & Davus lamps and generators, Schebler carbureters, Rushmore lamps and generators, horns, storage batteries, spark plugs, and other sundries of interest. The Diamond Rubber Co. has its line of tires, while the Crescent Oil and Supply Co. shows lubricating oils. The Vehicle Top and Supply Co. has tops and windshields, while the Triple Action Spring Co. is in evidence with its Triple Action springs. The William Barr Co. has a line of motor clothing, while the Waters-Pierce Oil Co. shows lubricating oils. S. F. Bowser & Co. have on view gasoline storage tanks, while Goodrich tires are shown by the B. F. Goodrich Co. The Supplementary Spiral Springs Co. displays its line of Supplementary Spiral springs, while Morgan & Wright have M. & W. tires. The Stepney spare wheel attracts considerable interest and the Witherbee ignition devices also are on view. Bodies are shown by the Mississippi Valley Automobile Co. and the William Young Carriage Co.

Of the "made in Missouri" products on exhibition none is more in evidence than the Success motor buggy, made in two sizes; one with single-cylinder motor, the other with a two-cylinder motor. Of these two the single-cylinder is the more unique in that the motor is located outside of the body on the right side—approximately at the end of the seat—and the drive is to the left rear wheel only, driving one wheel, thus eliminating a divided axle, a differential gear and generally simplifying matters. Next, in a brief resume of the Success, comes the front axle, made without the swinging ends for carrying the road wheels so that in turning corners the entire front axle swings as in horse-drawn vehicles. The vertical steering column has on its bottom a small sprocket, over which passes a short chain, the ends of which connect by rods with the ends of the axle. On this motor buggy is a two-speed planetary gearset, which is carried on a transverse countershaft in the rear of the motor, the power from the engine passing by means of chain to the countershaft and thence by chain to a jackshaft, from the end of which a chain transmits to the rear

GENERAL VIEW OF THE ST. LOUIS SHOW.

COMPLETE LIST OF EXHIBITORS IN THE

GASOLINE CARS

Dragon—American Garage Co.
Moon—Moon Motor Car Co.
Hol-Tan—Moon Motor Car Co.
Locomobile—Capen Motor Car Co.
Maxwell—Peper Automobile Co.
Thomas Detroit—Park Automobile Co.
Thomas Flyer—Park Automobile Co.
Autocar—Park Automobile Co.
Richmond—Gardner Motor Car Co.
American Mors—Swingley-Cabanne Motor Car Co.
Packard—Halsey Automobile Co.
Stevens-Duryea—Halsey Automobile Co.
Buick—Halsey Automobile Co.
Union—Union Carriage Co.
Dorris—Dorris Motor Car Co.
Matheson—South Side Auto Co.
Corbin—South Side Auto Co.
Reo—Acme Automobile Co.
Kisselkar—Acme Automobile Co.
Pierce-Arrow—Western Automobile Co.
Oldsmobile—Western Automobile Co.
Peerless—Mississippi Valley Auto Co.
Pope-Hartford—Mississippi Valley Auto Co.
Elmore—Mississippi Valley Auto Co.
De Luxe—Lakedel Automobile Co.
Jackson—Lakedel Automobile Co.
Pennsylvania—Lakedel Automobile Co.
Ford—Ford Motor Co.

ELECTRIC PLEASURE CARS

Baker—Park Automobile Co.
Columbia—Union Electric L. & P. Co.
Studebaker—Union Electric L. & P. Co.
Rauch & Lang—Union Electric L. & P. Co.
Woods—Mississippi Valley Auto Co.
Pope-Waverley—Mississippi Valley Auto Co.
Detroit—Mississippi Valley Auto Co.

wheel. Three chains are employed in conveying the power from the motor to the wheel road. Changes in speed are controlled by pedals and a couple of band brakes act on the planetary set. Road wheels 40 and 44 inches in diameter, front and rear respectively, carry steel tires, but solid rubber tires are fitted as extras when desired. A new 10-horsepower Success is listed for next season, which carries a two-cylinder air-cooled motor under the body and beneath the seat and which drives through a planetary set by chain to a jackshaft with differential and by chain from this jackshaft to both rear wheels. Those desiring can purchase a 12-horsepower water-cooled motor with a pair of opposed 4½ by 4-inch cylinders. The air-cooled cylinders in the 10-horsepower plant have 4⅛-inch bore and 4-inch stroke. In the two latter models the one-piece front axle is used. In all of these models ignition is by jump spark, with dry cell current.

The Union Carriage Co., of St. Louis, has on exhibition two unique vehicles that will probably appeal to the farmers. They are called the high-wheeled motor cars and in appearance very much resemble the old-fashioned horse-drawn spider, except that the wheelbase is longer, being 70 inches. The wheels are 30 inches in diameter and carry a 1⅛-inch solid rubber tire. The buggies are equipped with a 10-horsepower double opposed four-cycle air-cooled engine, which is placed in a horizontal position underneath the rear of the body. The rig is chain-driven and the transmission is of the planetary type with a Warner differential. A Timken roller-bearing axle and knuckle is supplied and the tread is 56 inches. The steering is by wheel with rack and pinion. Oil is supplied by the compression system. Two models are exhibited, one without a top and the other with a four-bowed top.

SECOND ANNUAL SHOW AT ST. LOUIS

Babcock—Colonial Automobile Co.

STEAM CARS

White—Colonial Automobile Co.

MOTOR CYCLES

Indian motor cycle—Hurck Motor Cycle Co.
Reading-Standard motor cycle—Hurck Motor Cycle Co.
Indian motor delivery van—Hurck Motor Cycle Co.

BODIES

Limousine bodies—Mississippi Valley Automobile Co.
Limousine bodies—William Young Carriage Co.

COMMERCIAL VEHICLES—GASOLINE

Logan—Logan Motor Despatch
Reliance—Mississippi Valley Auto Co.

COMMERCIAL VEHICLES—ELECTRIC

Studebaker—Union Electric Light & Power Co.
Couple-Gear—Mississippi Valley Auto Co.
Pope-Waverley—Mississippi Valley Auto Co.

ACCESSORY EXHIBITS

Crescent Oil & Supply Co.
Witherbee Ignition Co.
Stepney Spare Motor Wheel Co.
Vehicle Top and Supply Co.
Behen-Faught Motor Car Equipment Co.
William Barr Dry Goods Co.
Triple Action Spring Co.
Supplementary Spiral Spring Co.
S. F. Bowser & Co.
Waters-Pierce Co.
Diamond Rubber Co.
Morgan & Wright.
B. F. Goodrich & Co.

PROVES A TOUGH TEST

Heavy Roads Slow the Stepney Spare Wheel Party Going from Chicago to St. Louis

Chicago, Dec. 18—Sealed by the technical committee of the Chicago Motor Club, a 1906 White steamer touring car driven by Ed Grant and carrying Ed Van Lunn, L. F. Chaney and a Motor Age representative started at 7 a. m. last Saturday from Chicago to St. Louis in order to demonstrate the merits of the Stepney spare wheel, which was fitted to the right rear wheel of the steamer. It was planned to make the run to the Mound City in order to reach St. Louis in time for the show Monday night. Ordinarily this would have been an easy stunt, but the weather man was not taken into the reckoning. On Friday night it snowed heavily.

Despite these conditions, though, the spare wheel outfit started on schedule, evidently in for one of the toughest drives that can be found in this section of the country. The storm completely upset all calculations and instead of reaching St. Louis Monday the party now is on the last leg of the journey, having left Springfield, Ill., this morning, according to advices received from the Motor Age representative, Lyle Miller, who briefly describes the trip as follows:

"We left Chicago at 7:05 a. m. Saturday and for the first 10 miles the snow was very deep. We reached Dwight at 5:15 p. m. and stayed there that night, leaving at 7:30 o'clock Sunday morning. We made Lincoln that night at 5 o'clock after traveling 84 miles over roads that were hub-deep in mud. After leaving Lincoln Monday morning we stripped the bolts in the differential and it took us 15 hours to repair it. We drove 10 miles after completing the job at 1 o'clock Tuesday morning. Then the roads were so heavy we had to pull up on the side of the road and spend the rest of the night in the car. It took us 2 hours to drive 10 miles and for the remaining 18 miles to Springfield we used up 4 hours 15 minutes. The Stepney wheel is in perfect condition.

The Stepney spare motor car wheel which is being demonstrated on this trip is a clincher rim without felloe, spokes and hub, on which is carried an inflated pneumatic tire. This rim can in 47 seconds be attached to the side of a rim on any car wheel so that instead of repairing a punctured tire the Stepney wheel does the work of carrying the load, the punctured tire not even being taken off the permanent wheel of the car. When in position a Stepney spare wheel gives the motor car the appearance of having a dual tire on the wheel in question. The Stepney rim is a common clincher type, made sufficiently strong to carry the load without spokes or hub. One side of it has four hooks or clamps that fit over the clincher lip of the permanent wheel, the deflated casing having been pushed inward by hand to allow of the clips entering. Two of the Stepney clips are rigid and two adjustable by thumb nuts, making it only necessary to position the two rigid clips and then after positioning the adjustable clips, tightening them, so drawing the four clips tight. To prevent creeping of the Stepney a couple of leather straps are attached to it and buckled around the spokes of the car wheel. In the future spoke locks on the Stepney will engage spokes on the permanent wheel and obviate the use of straps. At present the Stepney is suited only for clincher rims but it will be made suitable for Fisks and Dunlops. In attaching it no tools are needed and nothing whatever has to be done to the permanent wheel except move the tire casing sidewise enough to allow the Stepney clips to grip the permanent wheel's clincher rim.

START OF THE STEPNEY SPARE WHEEL EXPEDITION FROM CHICAGO

The Western News Company of Chicago and Its Branches Supply Newsdealers
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INDUSTRY AT THE TURN IN THE ROAD

IG cars, big speeds, big profits, big demand, big carrying space and big looks! What more appetizing bait could have been offered the manufacturer a few years ago than this and what maker could not be pardoned for accepting it. Big things always have attracted more than little things, until the little thing has been sufficiently analyzed and its merits disclosed. History must repeat itself and no disappointment is felt at the trend in motor car construction during the past half decade in which each and every maker, starting with the single-cylinder machine, pushed it through a ceaseless metamorphosis of cylinder multiplication, wheelbase lengthening and body enlargement until the present luxurious and commodious cars are the climax. Germany did it before America; so did France, Italy and Austria. Then why not America? A reversion of scarce a minute into the halls of memory is enough to recall the humble lines of many of the pioneer cars; of how Thomas, Pierce, Packard and many others started with the single-cylinder car and year by year developed to the two, the three, the four or the six-cylinder machine. Other makers began with the two-cylinder and as hurriedly adopted the four, and now are in the six-cylinder field. This progress was commendable—the public demanded a high-powered car and the manufacturer gave or attempted to give it to the people. In this strife for the big car, the road locomotive, the little machine was forgotten, being relegated to the curiosity corner or having passed into comparative oblivion. Everything pointed to the big car: Bennett, Vanderbilt, grand prix and other cup races were conducted specially for it; it was given the points of vantage in the exhibitions and salons; and, in brief, was the all-and-all in motoring.

But every lane must have its turning and the big car regime is approaching the forks in the road. The little car is coming to the front, the middle classes are demanding a low-priced vehicle, the wealthy classes are getting pretty well stocked up and the maker of big cars is turning his attention to a smaller model—a cheaper car. As Europe was first to discover the big car demand and field, it is natural to expect that it would be first in discerning the trend towards the small car, which it has done. A year ago complaints came across the Atlantic of a decreased demand for big cars, coupled with increased sales in light cars or voiturettes. Coupled with this came announcement of road races and tours for small cars; and last of all the announcement from France that little cars have been the business getters at the Paris salon, while not a few big machines went begging for buyers. But go still further, the real interest in the Olympia and Paris shows was the low-powered machines brought out by makers who had previously classed themselves in the 50-60 class, but who are now proud to be reckoned as a 10-12 or a 14-18. Demand has made them double back on their tracks.

Already a few American builders have started back on the course—not backward in development, but back from the big car to the medium-priced or small machine. They have realized that there is a limit to the buyers of large cars, that the large car field has been well exploited and that in the future more effort will have to be expended in selling large big cars than was needed in the past. On the other hand, they see the vast field opening for the small car, the easy selling and the quick manufacture, and while profits are much smaller the bait is very enticing.

Taking it for granted that the small car field is opening, and that the big car field has passed its zenith, it becomes interesting conjecture as to how the small car field will be handled in America as compared with Europe. Abroad the maker has worked on the development of a vertical single and two-cylinder engine with a sliding gearset and shaftdrive. The most successful small car abroad uses a two-cylinder vertical engine, and has its transmission incorporated with the rear axle. Others that are close rivals of it use a single-cylinder vertical engine and sliding gear transmission. The opposed two-cylinder motor has not been adopted in France or England, the makers preferring to have a power plant carried under a forward bonnet to one housed under the floor of the car.

WHAT OF THE SHOWS OF THE FUTURE?

ROM this side of the Atlantic it would seem as if the makers of motor cars on the continent and in Great Britain are worried over the show question far more than American makers. The English governing body has been forced to act on a suggestion that Olympia be abandoned, which it unhesitatingly and unanimously refused to do, while in France they are debating whether or not to quit the show business altogether or hold a salon every other year—provided Great Britain will consent to alternate. On this side of the ocean we are not worrying. We have held our big shows and while the financial results in New York were not up to expectations because of the stringency of the money market, no one is complaining nor is anyone asking the A. L. A. M., the A. M. C. A. or the N. A. A. M. to abandon shows. It has been brought forcibly to the attention of American makers that the fall hardly is the right time for a show of national importance, and the fact that it has been about decided to go back to the old dates show that the powers that be recognize this fact and are trimming their sails accordingly. But the foreign situation comes as a surprise. The Olympia suggestion was received more in the nature of a joke, but the French proposition offers food for thought. One might almost argue that the British have won the battle for supremacy and that the French are suing for peace, else why should the French propose showing alternate years with Great Britain? John Bull's reply to this proposition ought to indicate which way the wind is blowing. Then, again, the fact that it is the big makers of France who are crying loudest against a yearly show would make one suspicious that they feel the competition of the little fellows, who, realizing the demand for medium-priced cars, are catering to this and are encroaching on the preserves of the big men in the trade who are just beginning to discover there are too many of them making high-powered high-priced cars, for which the demand is limited. So far none of the little French makers has been heard to declare for a show every other year, so it must be conceded there may be something in this angle after all. A third pathway leads to the conclusion that the standardization of the motor car is approaching so fast that the continental designers find it a difficult task to bring out something new each year, and, not having fresh ideas, believe that once in 2 years is enough to show the buyers what they have to offer. This sounds plausible, so far as Europe is concerned, but on this side of the big pond it is more than evident that the designers are not content to rest on their oars, but are striving to their utmost to constantly improve their product. The time will eventually come when big national shows of the kind now so popular will not be needed, but to Motor Age that time seems far distant. But the show question is a big one and sooner or later we of America will be forced to give it the same consideration.

IT IS only of late that the craze to try for 24-hour records on the road has taken hold of the motoring world, but in the short time it has been raging several creditable performances have been put up. In far-off Australia a Darracq did 777 miles, while last week in New Jersey a Thomas Flyer covered 512 miles in the journey twice around the clock. In the case of the former an average of a little more than 32 miles an hour was maintained, while the American car did 21 miles to the hour. It is perhaps fortunate for Americans that the Australian figures have not been reached, for Yankee law-makers are quick to seize an opportunity to stab at the motor car when illegal speed over public highways is maintained. Australians doubtless will stand for such performances, but in this country the sport and industry will be better served when a moderate pace is held. It is to be hoped that the 24-hour bug will not spread and that Titus will be allowed to rest on his 24-hour road laurels.

ANY scheme that will interest the farmin the good roads movement is worthy of support, hence the Milwaukee Automobile Club is to be congratulated on its idea of co-operating with the inhabitants of the rural districts. Prizes will be offered and in order to keep the farmers on their toes they will be asked to inspect the roads in the other fellow's district. In this way both the motorist and the farmer will benefit, the former by having good highways over which he can drive, while the latter will secure roads over which it will be possible to haul produce to market at all times of the year. The Wisconsin experiment should be watched with interest, for if it succeeds there is no reason why other states should not try it. In fact, it might be well for the American Automobile Association to look into the possibilities of the scheme. On paper it listens well.

COMPETITION is the life of trade and the fact that there are being discovered in various parts of the country roads that can be used for racing may have had something to do with the renewed life being shown by the Long Island motor parkway people. A Vanderbilt cup race on Long Island is to be desired, but above all it is essential that the promoters of the scheme make known just where they stand in order that manufacturers contemplating an entry in the classic can arrange their plans accordingly. A positive statement that the parkway will be ready in time for the race would go far towards assuring the American manufacturers and lead many of them to seriously consider having a try for a place on the team.

AS THE plans for the New York-Paris endurance test materialize the affair does not seem so hair-brained as when first it was sprung. Surely it would be a grand demonstration of the possibilities of the motor car to have several machines make the long trip across the American continent, over the Behring straits and run through Europe to the French metropolis. It would out-Glidden Glidden, for the globe-girdling stunts of the donor of the national touring trophy have been confined to shorter jaunts. The New York-Paris test would be a continuous run and the longest of its kind ever undertaken by the motor car. A strong showing by American makers would go a long way towards convincing those on the continent of the sturdy qualities possessed by the Yankee product.

THE lack of exact figures showing the motoring strength of the United States has caused many to attempt an estimate of the total number of cars in use in this country. Until there shall be a federal law requiring each state to report to Uncle Sam these statistics will be unavailable. However, one is able to get some idea through reports made in sections where a count is kept. Therefore, it is reassuring to know that in the New England states—Massachusetts, Connecticut, Rhode Island, Maine, New Hampshire and Vermont—there are 26,125 cars. Doubtless there are some duplicates, but on the other hand the statement gives the statisticians a chance to get some line on the total number of cars in use in the land of the free and the home of the brave.

ST. LOUIS' success in the show line is only in keeping with what has been expected. The show-me state is very much alive and offers the industry a place in which to dispose of some of the 1908 product. Liberal laws in Missouri also will help boom the game there and it is to be hoped the exhibition now on in the Mound City will go a long ways towards opening the eyes of the law-makers there as to the possibilities in the way of trade in the near future.

IT IS hard to please more than one master, as the Automobile Club of America is finding out in undertaking the promotion of the Ormond meet. One date suits some, while others clamor for a different one. Some like the rules and others do not. Therefore, it would seem wisest for the A. C. A. to take the bull by the horns and make its plans as it sees fit. It will come in for some sort of a blast either way.

THE WEEK IN BRIEF

First week in March is selected by Automobile Club of America for Ormond meet; date brings howl from hotel keepers, who say they cannot accommodate crowd at that time.

Every incoming steamer is bringing foreign cars for exhibition in the importers' show, which will open in Madison Square garden a week from Saturday.

Frenchmen seriously considering whether it would not be best to hold salon every other year instead of annually; would want England to coöperate.

Officers of the Electric Vehicle Co., in receivers' hands, express belief that concern will be reorganized and put on sound financial footing; business soon will be continued as heretofore.

Demonstrating trip from Chicago to St. Louis by Stepney spare wheel people results in rough experiences because of the heavy snow.

St. Louis show opens and affair proves a pronounced hit; blaze in building before doors open gives exhibitors a scare.

Fred Titus in Thomas Flyer breaks American 24-hour road record, covering 512 miles in New Jersey.

Arguments pro and con in the six vs. four-cylinder controversy are made by well known trade-men.

Long Island motor parkway people meet and report good progress.

COMING MOTOR EVENTS

Brussels Salon—Annual Belgian show, December 21-January 2.

Importers' Show—Importers' Automobile Salon exhibit of pleasure and commercial vehicles in Madison Square garden, New York, December 28-January 4.

Hartford Show—Annual exhibition of Automobile Dealers' Association of Hartford, Conn., in Foot Guard armory, January 14-18.

Irish Show—Annual Irish show in Dublin, January 4-11.

Italian Show—Exhibition in Turin, Italy, January 18-February 2.

Detroit's Armory Show—Seventh annual show of Tri-State Automobile and Sporting Goods Association in Light Guard armory, February 10 to 15, inclusive.

Boston Show—Annual Boston show, from March 7 to 14, in Mechanics hall. Chester I. Campbell, manager.

Buffalo Show—Sixth annual show of Automobile Club of Buffalo, from March 9 to 14. Dal H. Lewis, 760 Main street, Buffalo, manager.

Pittsburg Show—Automobile Dealers' Association of Pittsburg show in Duquesne garden April 4-11.

Canadian Shows—National motor car and sportsmen's exhibition in Toronto, March 21-28; third annual show in Montreal, April 4-11. R. M. Jaffray, 11 Wellington street, Toronto, manager.

SALON IS IN DANGER

Frenchmen Talk of Holding Their Show Every Other Year If England Will Alternate

Paris, Dec. 6.—For some time to come the French and British motor press will have as its important topic of the moment the question of the future Paris salon now being seriously considered. Shall there be an annual show or shall there be a show only every other year? Some even ask: Should there be any show at all? It was at the monthly meeting of the Chambre Syndicale de l'Automobile et des Industries qui s'y rattachent—or the Automobile Parts and Accessories Board of Trade—held last Monday that the matter came up, the president suggesting that the chamber begin action as to what to do concerning the salon of 1908. Several members started a discussion, some being in favor of the continuation of the annual show and others only for a show every other year. It was then decided that the committee of the board should immediately make a thorough canvass of all its members on the subject.

Several big makers have been asked their views. Rene de Knyff, speaking for the Panhard-Levassor concern, said that as a matter of principle his company is opposed to a 1908 show, provided, however, that an agreement is made with the British manufacturers and that no show is held in London next year. De Knyff is much in favor of an arrangement with the British makers and would like to see a deal made whereby the shows of London and Paris would alternate, first in the French metropolis and the next year in London.

Mr. Mors, of the Mors company, is decidedly in favor of a salon in Paris every 2 years instead of every year. "But supposing there be a show in London in 1908?" was the interviewer's remark. "The British manufacturers," replied Mr. Mors, "are not at all in favor of the yearly shows; I know it." Sizaire & Naudin had this to say: "The 1907 salon was very satisfactory. We could not accept all the orders we were offered. We sold our output and although we are well equipped for a big season we had no idea of getting such a large business. Very likely we owe this success to our decisive victory in the voiturette cup race. It would be difficult to say if we would have done as well through our agents or if we would have had as many agents and direct buyers calling if it had not been for the salon. We, therefore, will not express an opinion, but will state that if there is a salon in 1908 we will do our best to shine at it."

Marquis de Dion, speaking as a manufacturer, thinks that the salon really causes harm, but yet it is necessary. The show is especially costly for the big concerns, which spend enormous sums, and thus assure the splendor of the show, which permits a great many small concerns to become known, he thinks. In considering the matter from the point of view of society, the sport, as well as from that of customers' viewpoint, the marquis concludes that the annual salon is necessary, as otherwise the motor market would be leaving France. Mr. Brasier did not express an opinion, but stated that he knows of many manufacturers who would welcome having the show every 2 years.

Within a few days it is expected that the inquiry of the board of trade will be completed and the press is anxious to get the result. Editorially many papers think if the annual salon is changed to a 2-year show, it will be only a question of a year or two before London will become the motoring center of the old world.

The Paris agent for the Mercedes thinks that there should be an international agreement concerning shows. "One great salon is necessary, but not three or four; one in Paris, one in London, one in Brussels, one in Berlin, etc.," he says. "In far distant countries or in new countries where motor cars are to be introduced, it's all right to promote shows, but in the central states of Europe there is no need for more than one great exhibition."

General Manager Kauffmann, of the Vulpes company, thinks that there is absolutely no need for the costly expense for illumination and decoration. "It should be a commercial affair, a show for business purposes, with uniform decoration of the stands. I think the results would be just as good, possibly better, for, as a matter of fact, all the business we did was done mornings, when there was no illumination," he said.

M. Vimont, of the Westinghouse company, wants the show every 2 years and is not in favor of the "splendid decorations and illuminations." "The buyer, the agents, the really interested man, comes to see the chassis, while the rubberneck comes to see the decorations and illuminations. We don't care for the latter," he says.

HOL-TAN FIRST TO ENTER

New York, Dec. 15—The route of the proposed stock chassis race over a Westchester county course on April 29 has been shortened from 42 to 35 miles by the cutting out of Bedford, the officials of that town having refused to grant permission for the use of its roads. Thomas Moore, general manager of the projected race, has received the first formal entry in the shape of a check for $500 from the Hol-Tan Co., which has nominated one of the new Hol-Tan cars. Mr. Moore says that though the entry fee is $1,000 a $500 check is all that will be asked as a first payment. If a further assessment is levied there will be a rebate on the extra amount paid granted, if the profits of the race admit it. All profits arising on the basis of a $500 entry fee will go to Westchester county in payment of the wear and tear on the roads.

BALK AT BEACH DATES

Florida Hotel Keepers Object to First Week in March, Selected by Ormond Committee

New York, Dec. 16—Following a meeting of the contest committee of the Automobile Club of America held last week announcement was made that the date of the Ormond-Daytona meet originally scheduled for the last week in March had been moved forward to the first week of that month. There was much rejoicing among tradesmen and race followers over the change, as so late a date in March was generally regarded as inconvenient owing to the opening of the spring trade requiring the presence at home of many at that time. It now transpires that there is a chance that the announcement was a bit premature and that the Florida hotel and railroad people will insist that the original date be maintained, on the ground that the Ormond hotel will be unable to accommodate the racing crowd during the first week in March, when the regular season is at its

It is intimated by one very much on the inside that Chairman Morrell, of the club committee, might better have awaited the return of Secretary Butler from Florida before committing the club to any announcement as to date or program. Mr. Butler, who was to arrive last night, has postponed his return to Wednesday.

The club's committee at its meeting further ventured to announce the leading features of the program. These, it says, will include a 250-mile race for racing cars and a 150-mile invitation race for gentlemen amateurs in high-powered runabouts. It is further announced that the conditions for qualification for the mile and the 2-miles-a-minute have been changed from a 20-mile try-out at 45 seconds per mile to completion of the entire distance of either the 250-mile or the 100-mile race for the Minneapolis cup at an average rate of 50 miles per hour. As regards this new long-distance qualification test there is an inclination among some intending entrants of gasoline racers to doubt whether such a slow rate of speed for Ormond beach will be a sufficiently strenuous qualification test for the steam freaks to justly put them in the long-distance class, it being argued that this is far too low a minimum in view of the fact that 100 miles has been covered on the beach in the neighborhood of 1 hour 15 minutes. In fact, there is a tendency toward the opinion that the success of the meet from an entry standpoint would better be assured by leaving out the steam freaks altogether and making the meet one for legitimate long-distance cars exclusively.

Some are frank to state that they are opposed to any time limit qualification whatever, freaks or no freaks, on the ground that they do not care to make the expensive trip with any chance of being

barred from the minor and shorter races on the program through an unlucky failure to qualify for them in the long-distance events.

In the announcement of the program no mention is made of any long-distance race for stock cars, as had been promised. With such a race omitted the middle and short-distance stock car events will, as formerly, probably be confined to the machines owned by the winter residents and the few taken down for use on the beach during the meet. Incidentally and significantly, it may be noted that Chairman Morrell is interested in the promotion of a long-distance stock car race in Westchester county next spring.

Alfred Reeves, general manager of the A. M. C. M. A., writes from Paris that two famous European drivers, S. F. Edge and Baron de Caters, have announced their intention to come over for the meet. Edge is after the Minneapolis cup, which has already been won once by a Napier through Clifford Earp's victory in 1905. One more win will give the trophy to the Napier. Baron de Caters will drive a car of Belgian make. Senator Morgan says that whatever date may be set for Ormond that the Palm Beach motor boat regatta dates, scheduled for March 16, 17 and 18, will remain unchanged.

NEW ENGLAND'S STRENGTH

Boston, Mass., Dec. 18—That New England is a profitable field for the motor manufacturers is shown by the figures just collected by the Motor Age representative. It is not claiming too much in saying that there are very nearly 30,000 cars in use in the six states comprising this section. Good roads and a splendid variety of scenery comprising seashore, country and mountains, all within a radius of 1 day's traveling, is responsible for this. Massachusetts leads the other states by a large margin. Then comes Connecticut because of the fact that there are factories there. Little Rhode Island, that could be put in a small corner of Maine, takes third place, with Maine fourth, New Hampshire fifth and Vermont last. The registered number in Massachusetts does not represent the total number of cars, for since the new law went into effect, causing a reregistration in August and another in January, it is estimated that at least 1,000 owners have not taken out the new license. That the Bay State is becoming a leader in motoring is shown by the fact that since last June more than 2,400 new cars have been registered, making an average of nearly 400 each month. The figures given below for the various states are exclusive of dealers' cars. With the new registrations after January 1 in many states by those who do not want to pay a double tax the figures will largely increase. They are as follows: Massachusetts, 11,425; Connecticut, 6,300; Rhode Island, 3,000; Maine, 2,250; New Hampshire, 1,800; Vermont, 1,350; total, 26,125.

WANT A LONGER SHOW

Detroit So Well Pleased With Recent Affair It Will Try 2 Weeks' Exhibition Next Year

Detroit, Mich., Dec. 16—No development of recent weeks has so encouraged the manufacturers of motor cars in Detroit as did the result of the successful show of the Detroit Automobile Dealers' Association, which closed Saturday. Coming at their very doors, the expression of confidence in their product and in motoring in general was of the character that counts. The fact that more bona fide sales were clinched during the show than in any former exhibition of the kind in this city was a general surprise all along the line, yet the figures given by the management are indisputable and the fact that nearly every one of the exhibitors has turned into the newspapers a list of names of bona fide purchasers is plenty of corroboration, should it be needed.

One concern which handles a large line, running from light runabouts to four-cylinder touring cars, sold every car it had at the show and received orders for as many more—a most unheard of proceeding when the stage of the season is called to mind—and it was not the only distributer which far exceeded expectations.

In general the dealers were tremendously pleased at the experiment of an early show, given by themselves and in a new location for such affairs in Detroit. They all did well at the show itself, in the first place. The co-operative plan of the affair rendered it completely without expense to the exhibitors themselves. The location proved as near ideal as anything not strictly designed for such a purpose well could, and the association would unquestionably have prolonged it for another week had it been possible to retain the factory sample cars which formed so large a portion of the exhibits. These were booked, however, for St. Louis on Monday night. Next year, however, the association's show will be booked for 2 weeks beyond the shadow of a doubt, and it probably will be held at the same location, the only contingency leading to any other decision being the possible construction of that oft-locally promoted institution, a municipal convention hall.

The management of the show was able to finish the exhibition and turn the hall over to its owners on Monday with every car out and not one of them even scratched. Not a single complaint was registered with the show committee by an exhibitor during the entire week and not a lone exhibitor requested a pass after opening day, when each was allotted a certain number of free tickets.

Show Manager Pelletier has formed some interesting conclusions as the result of the local exhibition. One of them, and the most radical, is the fact that the day is not far distant when local motor car showmen will devote their efforts not toward securing as many paid admissions as possible, but to securing an attendance of prospective buyers only.

"The reason the latest Detroit show beat out its predecessors in respect to real business was because the crowds were composed very largely of people genuinely interested in motoring," said he to a Motor Age representative. "Aside from the character of these people, who are naturally drawn from the wealthier class, the show has no right to consideration as a society event. The non-purchasing spectator is more of an impediment than his money is worth at the gate. As a rule he asks more questions than a real prospective buyer, takes up more time from the salesmen who might otherwise be angling for real game, and prevents the live ones from circulating freely about on the floor of the hall.

"I should favor putting the admission for next year's show at a figure that will keep out all those who cannot at least afford a car. Perhaps a $1-rate would be large enough; if not, we could put it higher yet. The ideal crowd should be smaller than the lightest night of our recent show, which was the night the exhibitors did the best business."

NEW C. A. C. COMMITTEES

Chicago, Dec. 16—President Cobe, of the Chicago Automobile Club, today announced his committee appointments for the ensuing year as follows: Technical, F. E. Edwards, T. J. Hay, B. C. Hamilton; runs and tours, A. J. Banta, C. F. Van Sicklen, G. S. Chapin; racing, C. E. Gregory, J. F. Gunther, W. W. Shaw; house, Claude Seymour, H. C. Adams, George J. Williams, T. N. Koehler, W. G. Lloyd; membership, T. J. Hyman, B. B. Ayers, F. H. Pietsch; auditing, D. A. Moulton, E. E. Gore, Allan S. Day; good roads, F. B. Gethro, John C. Eastman, W. B. Walrath; legislation, laws and ordinances, Sidney S. Gorham, L. E. Myers, Joseph Harris, W. G. Tennant, F. D. Countess; entertainment, J. T. Leimert, Harry Vissering, L. W. Bremerman; art, F. H. Pietsch, F. G. Logan, B. H. Marshall.

MILES ON SHOW DATES

Chicago, Dec. 16—Samuel A. Miles, general manager of the N. A. A. M., who is just convalescing from an apoplectic attack which toppled him over at show time, today expressed the opinion that there would be no big shows held in 1908. That sounds startling until one figures carefully and discovers that this statement of Mr. Miles' means that the powers that be do not favor fall shows. Manager Miles believes there will be a return to the old schedule—that is, the two New York shows in January, 1909, with the Chicago exhibition following early in February. No announcement, however, has been made regarding the leasing of the Coliseum and its auxiliaries for the next show.

SAY OUTLOOK IS GOOD

Officers of Electric Vehicle Co. Believe There Will Be Thorough Reorganization

Hartford, Conn., Dec. 13—Everything appears to be tranquil with the Electric Vehicle Co., which went into the hands of receivers on Tuesday of this week. The rumor had been afloat from time to time that the concern was hard pressed and when the climax was reached it caused not a ripple. Stringency in the money market and the inability to raise ready cash are the causes of the company's troubles. For a day and a half this week the plant had been closed down for inventory. This would have to have taken place in about 2 weeks hence anyway. Operations will be resumed on Monday next and all effort will be devoted to getting out cars already ordered. The receivers, Halsey M. Barrett and Henry W. Nuckols, the latter secretary and treasurer of the company, express the opinion that all claims will be met.

The factory force at present comprises about 600 men. The company, which has many orders in hand for cars, will shortly be reorganized and business continued as heretofore. The situation looks promising, and it is said there is every reason to believe that when the company has been reorganized it will be on a firm financial basis. No one affiliated with the concern is inclined to be dubious as to the outcome. The 29-horsepower car, which was introduced two seasons ago, has proven a good seller and found a good market this season. The electric vehicles manufactured by the company are also in demand and many orders are already booked, it is stated by the company's officers.

Overcapitalization is said to have been one of the concern's burdens. The first news of the trouble was received late Tuesday afternoon. Judge Joseph Cross of the United States circuit court appointed the receivers at Elizabeth, N. J., and each was bonded to the extent of $200,000. The application made by the Hartford Rubber Works Co., of this city, which has a claim of $11,785, is understood to be friendly. In appointing the receivers Judge Cross adjudged the company insolvent inasmuch as it had defaulted payment of $2,500,000 gold bonds which matured in November, and also other obligations which have recently matured. M. Toscan Bennett, local legal adviser of the company, however, said authoritatively that the company was solvent and that the action was for the appointment of receivers only. The receivers are most optimistic as to the outcome. They also declare the company is not insolvent.

After the New Jersey proceedings, Messrs. Nuckols and Barrett came to Hartford and appeared before Judge Wheeler, of this city. Lucius F. Robinson appeared for the petitioners, the Hartford Rubber Works Co. and M. Toscan Bennett for the Electric Vehicle Co. Judge Wheeler granted the prayer of Mr. Robinson for the appointment of the same men as auxiliary receivers in Connecticut as were appointed in New Jersey. This simplifies matters. Judge Wheeler also assigned a hearing on the confirmation of appointment of receivers on December 24 at 1 p. m. The American Security Co. is acting as security for the receivers appointed for the Electric Vehicle Co.

POPE COMPANY AFFAIRS

Hartford, Conn., Dec. 14—Attorney Arthur L. Shipman, legal representative of the Pope Mfg. Co., appeared before Judge Wheeler in the short calendar session of the superior court at Hartford in the matter of the Pope Mfg. Co.'s affairs. He desired that the court accept the receiver's report for November, and also authorize the issuance of receiver's certificates, as well as approve the form of these certificates. Furthermore, authority was asked for the continuation of the company's business. The report was accepted and the desired authority granted. The report gave the cash receipts for November as $112,304.99 and the receipts from the collection of accounts and notes receivable as $23,158.84. The receipts from sales by receivers were $37,062.52. Other receipts brought the total up to $176,316.98. Cash disbursements were $164,926.54 and the balance was $11,390.44. The receipts from Hartford accounts were $11,274.98, from Westfield accounts $9,220.19, from Hagerstowns accounts $2,663.69, with a total of $23,158.84. The cash balance in the First National bank at Hartford is $7,995.81. The accrued liabilities of the receivers are $27,085.10. The balances due to the receivers of the Pope Mfg. Co. and the Pope Motor Car Co. in other districts are $6,255.12. The accounts receivable from sales by receivers October 31 amounted to $63,854.93, and the sales by receivers for November to $25,740.54, a total of $89,575.47, from which cash collections are to be taken, aggregating $37,062.52, and motor car deposits, etc., amounting to $13,995.74, leaving $51,058.26.

512 MILES IN 24 HOURS

Newark, N. J., Dec. 4—Fred J. Titus and John Prewitt, of the New Jersey branch of the Harry S. Houpt Co., completed today a 24-hour endurance run in a Thomas Flyer. They covered 512 miles despite strenuous obstacles in the form of rain, snow and mud. George Walters and E. E. Pearce accompanied them as official observers. The motor was not stopped during the run nor was an adjustment made. They encountered but two punctures. No chains were used and there was much skidding in consequence. All meals were prepared and eaten while the car was running, save breakfast this morning, which had to be bought because the larder had become exhausted.

COME FOR THE SALON

Incoming Steamers Bringing Many Foreign Motor Cars For the Garden Show Next Week

New York, Dec. 16—Foreign car models are arriving by every incoming steamer for exhibition at the show of the Importers' Automobile Salon, which opens at Madison Square garden on Saturday night of next week. Preparations for the show are well advanced and its promoters are confident of an artistically embellished exhibition and a display of high-grade cars that will compare favorably with previous Madison Square garden shows. Nineteen different makes of foreign cars representing six nations are promised—Rochet-Schneider, Panhard, Renault, Hotchkiss, Clement-Bayard, C. G. V., Darracq, Pilain, Delahaye, de Dietrich and Delaunay-Belleville from France; Fiat, Itala, Bianchi and Isotta Fraschini from Italy; Martini from Switzerland, Maja from Austria and Benz from Germany.

The list of exhibitors follows: Auto Import Co., Rochet-Schneider; Archer & Co., Hotchkiss; Bergdoll Motor Car Co., Benz; Brewster & Co., imported cars; S. B. Bowman Auto Co., Clement-Bayard; C. G. V. Import Co., C. G. V.; Darracq Motor Car Co., Darracq; Delahaye and Pilain Import Co., Pilain and Delahaye; de Dietrich Import Co., de Dietrich; Fiat Automobile Co., Fiat; Itala Import Co., Itala; Isotta Import Co., Isotta-Fraschini; Martini Import Co., Martini; L. P. MacNamara, Renault; Maja Co., Ltd., Am. Br., Maja; Percy Owen, Bianchi; Panhard & Levassor, Panhard; Palais de l'Automobile, Delaunay-Belleville; J. M. Quinby & Co., imported cars; Rothschild & Co., imported cars; Rolls-Royce Import Co., Rolls-Royce; Renault Brothers Selling Branch, Renault.

A list of the tire, accessory and publishing concerns which will occupy the elevated platform and mezzanine floor, subject to a few possible changes at a later date, is as follows:

H. T. Alexander Co., Acetylene Co., Auto Supply Co., Robert Bosch, S. F. Bowser & Co., Continental Caoutchouc Co., Central Automobile Top Co., Cole & Woop, Comptori D'Innovations Pour Autos, Dow Tire Co., Diamond Rubber Co., Fisk Rubber Co., B. F. Goodrich Co., Glaenzer & Co., Healey Leather Tire Co., Hartford Suspension Co., Hartford Rubber Works Co., Isaac G. Johnson & Co., Leon Mann Co., Lavalette & Co., Motor, Charles E. Miller, Michelin Tire Co., National Sales Corporation, N. Y. and N. J. Lubricant Co., Pneu L'Electric Co., Pennsylvania Rubber Co., Leon Rubay, Spare Motor Wheel Co., S. Smith & Son, Samson Leather Tire Co., C. E. Splitdorf, Victor Shock Absorber Co., Warner Instrument Co. and Wood Mfg. Co.

The execution of the plans formed for the show is progressing rapidly, almost daily meetings being held by the show com-

mittee at the salon headquarters on Forty-second street. The work on the decorations and the general construction in connection with the show is also being pushed rapidly and possession of the garden will be taken immediately after the poultry show. The staff work for the decorations of the interior of the garden is now in an advanced state of completion. The vast amount of fine detail in the decorative scheme retarded the work considerably, but an increased force of sculptors has been busily engaged for the past week or more.

HUSTLING PARKWAY WORK

New York, Dec. 12—Reports presented by the president, the chief engineer, the treasurer, the general manager and chairmen of various committees made today at a largely attended meeting of the Long Island Motor Parkway, showed marked activity and encouraging progress in the scheme for a great speedway. President Vanderbilt presided. Thirty-four miles of right of way between the Jericho turnpike at Mineola, Fulton street at Hempstead village and Garden City on the west and Lake Ronkonkoma on the east have been secured. Details of surveys have been made. Applications have been made to the various boards of supervisors, highway commissioners, etc., for their consent to cross the various highways between these points, either above or below grade. The engineering department is now preparing detailed tracings for these various crossings, including the three crossings of the L. I. R. R. at Mineola, Central Park and Hempstead. Various types of road construction, of which test is now being made, were reported on by the chief engineer. He and the general manager further reported that the right of way between Riverhead town and Riverhead village had been surveyed in full and that the Riverhead board of trade had worked with enthusiasm to aid the project. Rights of way between Lake Ronkonkoma and Riverhead town, the terminal of the parkway, are now being secured.

NEW YORK BARS CHAINS

New York, December 16—A new ordinance of the department of parks, which goes into effect today, prohibits the use of chains on tires in any public parks or on any highway under the jurisdiction of the park board. The prohibition covers all the parks in Manhattan, Brooklyn and the Bronx, as well as the chief parkways, including the Riverside drive in Manhattan, the Ocean boulevard in Brooklyn and the various park boulevards in the Bronx. In a word, the use of chains is prohibited practically throughout Greater New York. The rule reads: "No automobile or horseless or other vehicle wearing chains over the tires of their wheels shall enter the public parks or the traffic roads under the jurisdiction of the board of parks without permission of the commissioner having jurisdiction."

WAY TO TOUR IN ITALY

Government Furnishes Information That Is Valuable to Motorists Traveling Abroad

Washington, D. C., Dec. 15—In view of the fact that large numbers of motor cars are now being shipped from New York to Naples for touring purposes, the federal government has collected considerable data regarding the Italian customs regulations for the benefit of American motor car tourists. The entire charge of the custom house agents and expenses on week days is $15.44 to $28.95, and on Sundays and government holidays from $28.95 to $57.90. If order to clear a motor car on Sundays or holidays, it is necessary to arrange on the preceding day, so as to insure the presence of the special officers. The duties payable are as follows: On cars weighing up to 1,125 pounds, $38.60; from 1,125 to 2,250 pounds, $77.20; over 2,250 pounds, $115.80. These duties cover the accessories of the car.

Owners of motor cars on a visit to Italy can deposit the amount of the duty on entering the country, to be reimbursed to them on leaving, either by sea or by land. The reimbursement of the deposit cannot be effected after 6 months have elapsed, and to meet such a case application must be made to the Italian treasury department for the necessary extension.

The Touring Club of Italy has a special arrangement with the treasury department which will save owners of motor cars much trouble and inconvenience. On demand of a member of a foreign touring club and on deposit of the maximum sum of 600 lire the Italian Touring Club will issue a special certificate to be presented to the customs authorities on entering the country. On leaving the country a certificate must be duly endorsed to that effect, and the Italian touring club will at once refund the amount deposited on delivery of its certificate with the requisite customs endorsements.

For every motor car entering Italy the following documents must be exhibited to the customs: Papers giving the name and address of the owner; certificate of the chauffeur showing that he is entitled to drive a car and the number and make of the car. The charge for landing a motor car is $4.83, irrespective of its size. Motor cars which have been introduced into the country on the deposit arrangement are free from Italian taxes until the expiration of the 6 months or such time as extended by the government. After that they must be entered on the Italian registers and pay taxes.

The federal government has been particularly active of late in gathering information which can be used by motorists contemplating a tour in Europe. It is recognized by the authorities here at Washington that the sport is of such magnitude that it is deserving of recognition and at the present time as much attention is being given to it as to the trade end, and that is considerable. It was shown last summer by reports from the United States consuls located in many of the leading cities in Europe that comparatively vast numbers of Americans now travel across the continent in motor cars, spending large sums of money and thoroughly enjoying the escape from the vexatious delays so often encountered in journeying by rail.

RUN FOR NEW YEAR'S

Philadelphia, Pa., Dec. 15—Slow old Philadelphia will, as usual, come to the front New Year's with the first motor-contest of the year—the annual 2-day endurance run of the Quaker City Motor Club. Arrangements for the run are under way, and the large number of entries already assured indicate an even greater list of contestants than in the 1907 run, when twenty-four lined up to take word, thirteen finishing within the limit. On that occasion Harrisburg was the other mark, the outward trip being via Lancaster and the return by way of Reading—a round trip of 214 miles. The route selected for the 1908 eye-opener will make Allentown the over-night stop, the outward trip being by way of Easton and the return through Reading and Norristown. But two classes were provided for in the last run—class A, for touring cars, which was won by the Stevens-Duryea, and class B, for runabouts, captured by the Autocar. There will be four classes in the Allentown run—class A, for touring cars carrying four or more passengers, the winner to be awarded the MacDonald & Campbell cup; class B, for high-powered roadsters; class C, for small runabouts, and class D, the free lance division. Special cups will be hung up for classes B and C, and a similar emblem for class D, although in the latter case the prize will not be awarded to the car, but to the most popular driver.

WISTER MADE PRESIDENT

Philadelphia, Pa., Dec. 15—At the annual meeting of the Philadelphia Automobile Trades' Association, in parlor D of the Hotel Walton, recently, J. J. Wister, of the firm of Gawthrop & Wister, was elected president; George H. Smith, manager of the local branch of the White Co., vice-president, and L. D. Berger, of the Motor Shop, secretary-treasurer. These three, with F. C. Van Derhoof, manager of the local Ford branch, and I. J. Morse, head of the Locomobile branch, will constitute the board of directors. The report of the show committee was exceedingly gratifying, and showed the largest profits in the history of the association, and this despite the largely increased expenses and the unfavorable money situation. The early show date seemed to have a beneficial effect on the attendance.

MAGNETO SPARK VS. BATTERY SPARK

IN ITS issue of March 21, 1907, Motor Age published on pages 16 and 17 a paper read by W. Watson before the Automobile Club of Great Britain and Ireland, now known as the Royal Automobile Club, and this week is published on the following pages the results of a special investigation made by Mr. Watson at the request of the Autocar and which appeared in a recent issue of that journal.

The following are the six conclusions arrived at by Mr. Watson and which are reprinted from Motor Age of March 21 for the benefit of those readers who may not have read the first paper:

1—As far as a gasoline engine of the type used is concerned, the character of the spark which ignites the charge has no appreciable influence on the power developed.

2—With a trembler coil the time at which the spark occurs is liable to vary greatly, and on this account the power developed may be considerably reduced.

3—The variation in the time of firing obtained with trembler coils is different for different coils, and hence a multi-cylinder engine in which a separate coil is used for each cylinder is unlikely to develop its maximum power, particularly at high speeds; the reason being that although the tremblers of the coils may possibly be so adjusted for some particular voltage that each cylinder fires at the same point of the stroke, yet this adjustment will no longer be true if the voltage of the battery alters, particularly if it falls much below the value for which the tremblers were adjusted.

4—When a single coil is used in combination with a high-tension distributer the current in the primary should never be allowed to fall to a value near what has been called above the critical value for the particular coil. In this connection it may be mentioned that, in the author's experience, when the trembler is so adjusted for any given voltage of the battery namely for a given current, that the note produced is very clear and "pure," then a very slight decrease in current, due to a small fall in the voltage of the battery, will cause the timing to be defective, owing to the region of the critical current being approached. Hence, with the normal current passing—namely, with the battery fully charged—it is advisable to adjust the trembler so as to give a somewhat harsh and shrill sound, for then the current may be considerably reduced before the critical value is reached.

5—When selecting a coil, regularity in the working of the trembler for considerable variation in the current passing in the primary is of more importance than length or fatness of spark. Further, a coil taking a small current is to be preferred to one taking a large current, since trouble with the adjustment of the trembler blade will be decreased, owing to the reduced sparking at the platinum points with a small current.

6—Except for the fact that the engine cannot be started on the switch, the plain coil with a rapid break on the two-to-one shaft seems preferable to a trembler coil, since over a very large range of current—in fact, whenever the current is large enough to cause the passage of a spark in the cylinder—the timing is exactly the same. The advantage of the trembler might be retained by using a switch, so that after the engine is started the trembler can be cut out, allowing the coil to act as a plain coil, a second condenser being provided.

Here follows Mr. Watson's full report of his latest investigations on the relative merits of the lean and fat spark and also the relative merits of the magneto and coil-battery as rival ignition systems in hydrocarbon engines:

The engine used is the same as that employed in the previous experiments, having two cylinders 3.5 by 4 inches. The magneto and coil were so arranged that by means of a high-tension switch it was possible to rapidly change from one to the other. The indicator is an optical one, which gives undistorted diagrams, having a uniform pressure scale.

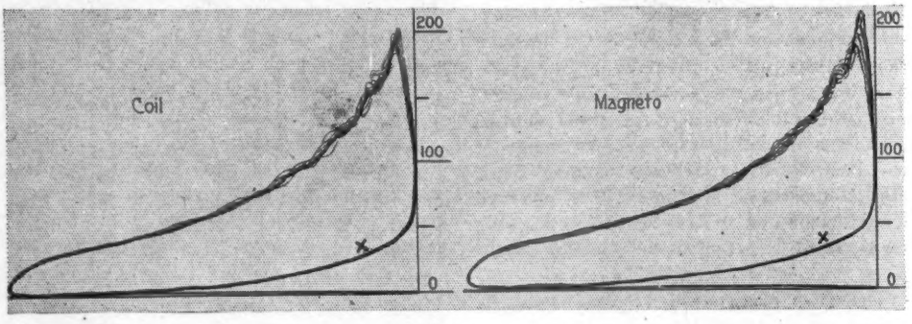


FIGURE 1

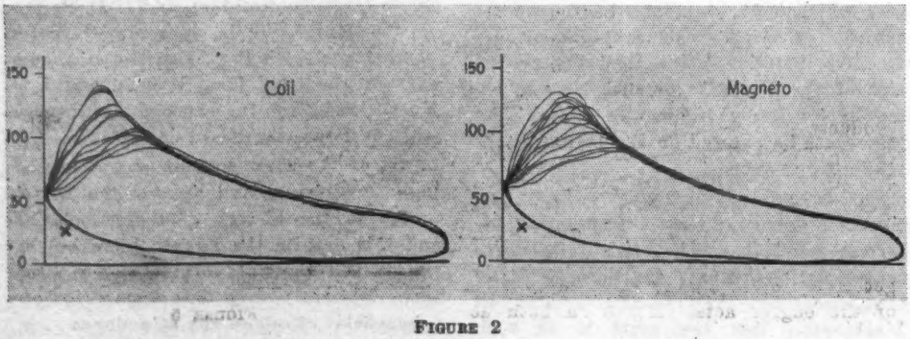


FIGURE 2

In every case a photograph of the spark was taken on the plate, so that the exact instant at which the spark passed could be seen on the indicator diagram. This was accomplished by having a spark gap alongside the small hole, of which the spot of light is an image, this spark gap being in series with the ordinary sparking plug. The auxiliary spark gap was short-circuited while the exposure for the diagram was being made, so that the effects observed should not be complicated in any way by having an external spark gap. It may, however, incidentally be mentioned that no difference could be observed whether this auxiliary spark gap was in series or not. The first series of experiments were made with the sparking plug in the ordinary place, namely, over the inlet valve, which, together with the exhaust valve, is in a pocket. The sparking

plug points were set 0.4 millimeters apart.

Two indicator diagrams, obtained when the best mixture of gasoline and air was used, are shown in figure 1, with the engine speed in all cases at 900 revolutions per minute. It will be observed that there is no difference in the pressure developed, the timing of the two being so adjusted that both sparks commence at the same point on the compression stroke. Since the image of the spark is apt to be rather faint in the reproductions of the figures, though quite clear on the negatives, a small cross has in all cases been placed to indicate the point at which the spark commenced.

In figure 2 are shown two corresponding diagrams in which the mixture used is so weak in gasoline that any further dilution with air caused the mixture to fail to ignite whether coil or magneto was employed. Here, again, there is no difference, the small spark due to the coil is just as efficient as the large magneto spark.

Although the above indicator diagrams enable us to see that the power developed in the two cases is the same, they are not very well suited for judging whether or not the very hot magneto spark is able to fire the charge more rapidly, for that portion of the diagram corresponding to the ignition of the charge is much crowded together, since the piston is at the top of the stroke, and consequently is moving very slowly. However, the indicator allowed of photographs being taken in such a way that the spot of light was traveling at its maximum horizontal speed during the time the charge was igniting, when even a small difference in the rate of firing, owing to the change in the character of the spark, would at once be apparent. Two such diagrams for a strong mixture are shown in figure 3. In this and in figures 4 and 10 the vertical lines drawn across the diagram divide it up into portions corresponding to equal intervals of time, the value of the interval in each case being .0033 of a second. The diagrams are to be read from left to right, and the instant when the piston is at the top of its stroke is indicated by an arrow head. By means of the time marks it will at once be apparent that whether we are dealing with a strong mixture, figure 3, or a weak mixture, figure 4, the rapidity with which the charge ignites is the same whatever the intensity of the spark. It is interesting to note from these photographs that the interval which elapses between the passage of the spark and the first appreciable rise in pressure, due to ignition, is about 0.003 second for the strong mixture and 0.0065 second for the weak.

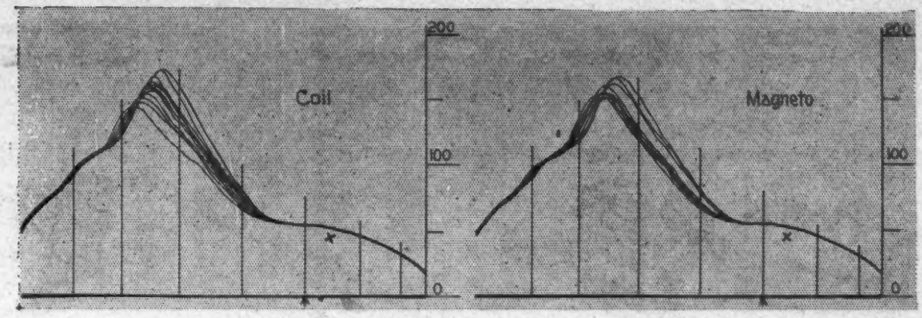


FIGURE 3

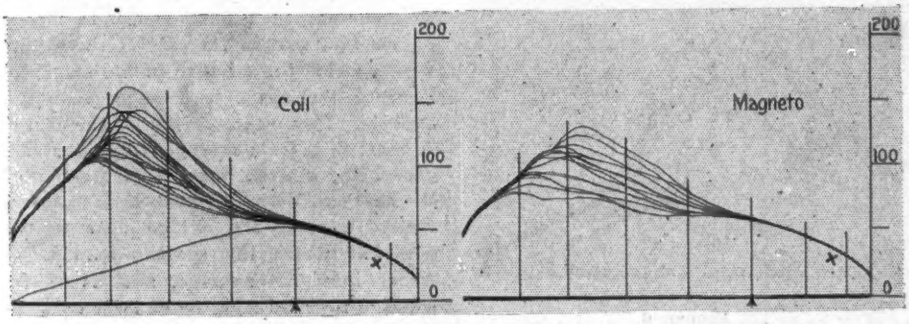


FIGURE 4

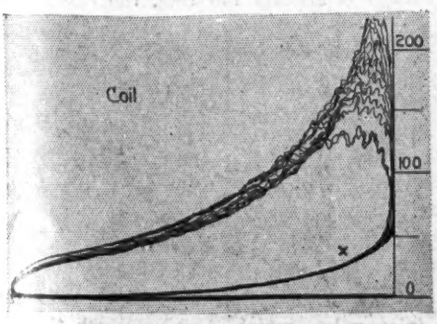


FIGURE 5

The above series of experiments simply confirm the results previously obtained, using different intensities of sparks produced by coils, and they do not explain the marked improvement obtained by some observers when using a magneto. The only probable explanation of the discrepancy seems to lie in the difference in the shape of the combustion space. In the experimental engine in which both valves are in a pocket which communicates with the cylinder by a comparatively narrow opening, the gas which surrounds the sparking plug at the end of the compression must be almost entirely free from any admixture of products of combustion left over from the previous stroke. Further, the last portion of the charge obtained from the carbureter will probably be considerably richer in gasoline than the average, as owing to inertia, the jet of liquid will only get into motion slowly when the suction of the engine acts. Hence on both accounts the charge in the neighborhood of the spark is probably very much richer in gasoline than the average. A spark, however small, will ignite this rich mixture, and the ignition having started will be propagated through the mass of gas. In the case, however, of an engine not having pockets this effect would not occur, and hence the mixture in the neighborhood of the spark would not be richer than the average, so the question arises whether in such a case a very hot spark might not be able to fire a charge which was too weak to be fired by a small spark. This view was supported by the observation on the writer's own car, where there are no pockets and the sparking plug is in the combustion head, that if the spark points are very near together, then a weak mixture will not fire regularly, although a strong one will do so. With a weak mixture only every other charge fires, the misfired charge serving as a scavengering stroke, so that virtually the next stroke has a richer mixture.

Since it was not practicable to change the shape of the combustion chamber on the engine, the position of the spark plug was altered, which comes to very nearly the same thing as far as the question under consideration is concerned. A second spark plug was screwed into the hole provided for the compression cock, which is on the side of the cylinder opposite to the pocket containing the valves. At first the sparking points were placed so that they were in a hole 5/8-inch in diameter, and at a depth of 1 inch from the inside of the cylinder. A certain amount of to-and-fro movement of gas takes place past the points in this position, since the gases which move into and out of the indicator have to pass down the hole.

With the spark at the plug in the hole in the side of the cylinder, which may for

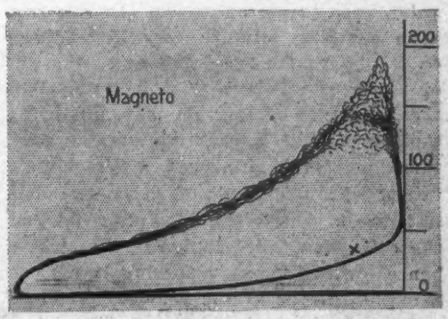


FIGURE 5

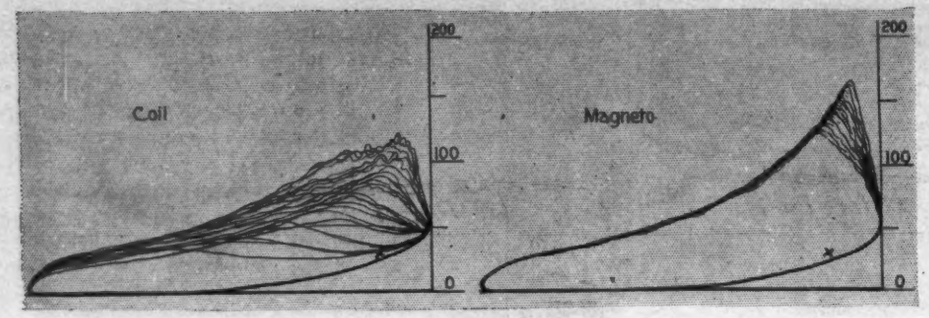


FIGURE 7

short be called at the back of the cylinder, it was at once seen that there was a difference according as to whether a coil or magneto was used, that is, as the intensity of the spark was changed. In the case of the mixture of gasoline and air giving the maximum pressure, the difference is illustrated in figure 5.

In the case of the magneto the charge is fired quite regularly, and the work done in successive effective strokes is sensibly constant. With the coil on the other hand misfires are fairly frequent, and as each misfire is followed by a stroke in which owing to scavengering the quantity of charge is larger than usual, and hence the pressure developed is above the average, the work done in successive strokes varies considerably. It will be observed that the effect of igniting the charge in the immediate neighborhood of the tube leading to the indicator is to very much accentuate the pressure set up in this tube, causing the line representing the working stroke to be very much more wavy than is the case in figures 1 to 4. This is the true explanation of the increased waviness, and not inertia of the moving system of the indicator, is shown by figure 6. The right-hand diagram was obtained when the charge was fired over the inlet valve—that is, as far away as possible from the tube leading to the indicator—and the other when the charge was fired just outside the end of the tube leading to the indicator.

With a weak mixture, figure 7, the difference between the effect of the two kinds of spark is even more marked. Since the spark plug at the bottom of a hole is not an arrangement likely to be used in practice, a new plug was made of such length that the sparking points just reached to within the cylinder, hence the arrangement was practically indentical to what is used in some engines where no valve pockets are employed. In this case with a strong mixture very little difference between the two kinds of sparks was obtained, as will be seen in figure 8. Further, the rate of ignition was practically the same. With a weak mixture, however, there was still a marked difference obtained with two kinds of spark as shown in figure 9, where it will be observed that the coil often failed to ignite the charge, hence owing to scavengering when an explosion did occur the pressure produced was much above the average. These two diagrams illustrate very clearly a case where the magneto has a distinct advantage, for with the strength of mixture used the work done in successive strokes does not vary to any serious extent, and hence the engine will run regularly. With the same strength of mixture, however, the engine runs very irregularly with the coil, as, owing to the misfires and strong explosions by which they are followed, the work done in successive strokes varies greatly and the engine thumps. In order to make the engine run regularly with the coil the mixture has to be stronger, and then the power developed is greater, so that the flexibility is reduced. The rate at which the charge starts burning is not appre-

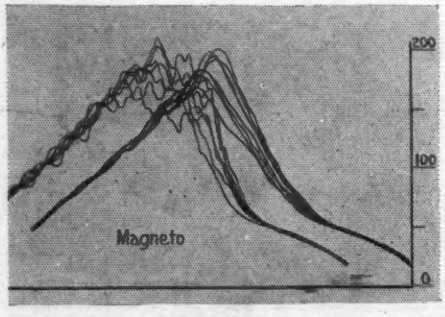


FIGURE 6

ciably different with the two kinds of spark, although the rate of burning in the case of the charge fired by the coil is rather more variable, and in some cases considerably slower than when the magneto is used. These effects are shown in figure 10.

In order to obtain some idea as to the relative fatness of the spark an ordinary sparking plug was fitted into a small glass globe, an inclined water manometer being also attached to the globe, forming a Riess' thermometer. Thus, when the spark passes the air in the globe is heated and the pressure of the air rises. The engine being run on one cylinder, the high-tension current which ordinarily was used to fire the other cylinder was taken to the plug in the thermometer, and the movement of the surface of the water in the manometer during 10 seconds was observed, the engine being kept running at a constant speed. In this way it was found that the heat developed at the spark gap by the magneto was very nearly ten times the heat developed by the coil. The conclusion to which the above experiments point are as follows:

1—With an engine in which the inlet valve is in a pocket and the spark occurs in this pocket, neither the pressure developed nor the rate at which the charge burns depends on the intensity of the spark or whether it is due to a coil or a high-tension magneto.

2—With an engine in which the spark occurs inside the combustion space over the piston there is very little difference as long as a mixture is used which does not depart much from that which gives the maximum pressure. With weak mixtures, however, there is a distinct advantage in using a very intense spark, such as is given by the ordinary magneto.

3—The well-known fact that an engine with the valves in pockets is more flexible than one without pockets is seen to depend on the fact that in the case of the engine with pockets the mixture in the neighborhood of the spark is stronger than the average. Hence the ignition of the charge is started in this stronger mixture, and, once being started, spreads to the rest of the charge. Where no pockets are present the portion of the charge near to the point at which the spark occurs is no richer than the average, and hence the average richness must be at least equal to that of the richer portion of the charge in the engine with a pocket, or a misfire will occur. The above remarks apply to the case where the mixture is never too strong. If, however, closing the throttle caused the strength of the mixture to increase to such an extent as to be richer than the normal, then it was found that firing the charge over the inlet valve was a disadvantage, as greater flexibility was secured when the charge was fired in the combustion chamber. The reason being that, as has already been pointed out, the charge in the pocket is always richer than the average. Hence, if the average charge is already too rich, the charge in

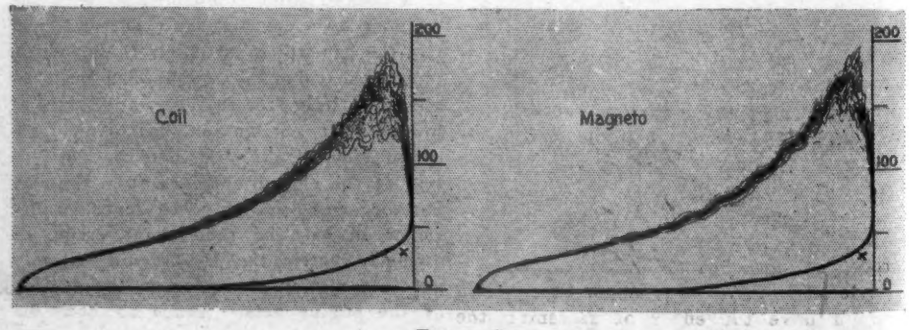


FIGURE 8

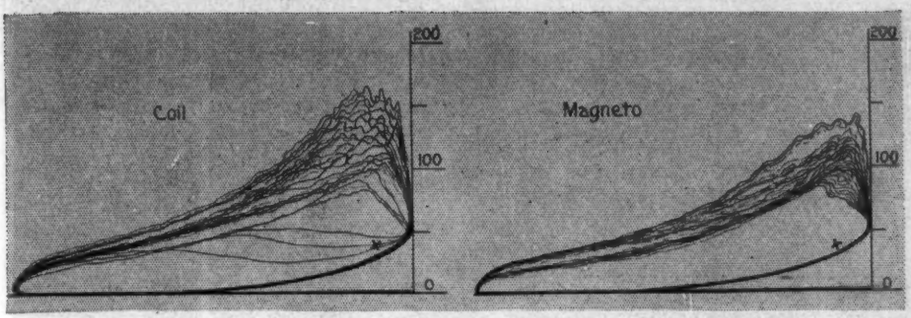


FIGURE 9

the neighborhood of the spark may be too rich to fire. It will thus be seen that the question as to what kind of spark is best involves not only the position of the sparking plug, but also the peculiarities of the carbureter, and method adopted to throttle the engine.

4—Finally, it seems probable that in most cases where improved running has been observed, in the case of a multi-cylinder in particular, on the replacement of high-tension coil ignition by high-tension magneto ignition, the improvement is due to improved timing obtained, owing to the replacement of the tremblers in the coils, by the plain make-and-break in the magneto.

A LAYMAN'S VIEW

In the opinion of many car owners a fat spark is better than a thin one for igniting weak mixtures, and, secondly, that although Mr. Watson's tests show that the magneto under certain conditions gave slightly better results than the coil he used, it does not follow that there are not ignition coils made which will give better results than even the best magnetos. Mr. Watson has shown in previous experiments that there was no difference in the running of the engine whether the spark was fat or thin. Experience shows that there is a decided difference, specially when the mixture is weak. Mr. Watson's recent tests would appear to confirm this, as he certainly gets better results with weak mixtures when running on the magneto than when running on the coil. And by his measurement the magneto spark was nearly ten times as fat as that from the coil. However, the fatness of a spark is not a definite indication of its igniting properties, it only indicates that the air has been disturbed or heated by the passage of a certain quantity of electricity, and within limits it is difficult to detect with the eye whether a large current has passed in a very short time or a small current passed during a longer time. For best ignition what is required is a large current at a given instant, and as this appears at the plug as a fat spark it is clear that if the igniting spark is thin, showing that a small current is passing, the running of the engine will not be the best possible, and further, that if a spark of the same current is made to continue for a longer time, which would have the effect of fattening the spark, the results would be no better.

It is interesting to note in the indicator diagrams of Mr. Watson's tests the different photographic marks made by the magneto and accumulator sparks. On the assumption that the length of this mark represents the duration of the spark it will be seen that the magneto spark lasts on the average from six to seven times as long as the accumulator sparks. Now, as the total heat by measurement is nearly ten to one, the magneto gave roughly 50 per cent more current in the spark than the coil and accumulator.

In certain systems the comparatively slow spark from an induction coil is stored up in Leyden jars and then discharged. The total quantity of electricity being discharged in a very minute space of time, the result is a very large momentary current, and the spark is, in fact, the hottest spark that is at present known. These igniters are used, among other purposes for igniting blast furnace gas in many large engines. In some cases matters were so arranged that the engine could be run on the Leyden jar spark, or, by short-circuiting the jars, fired direct by the induction coil. Blast furnace gas is the weakest gas used in an internal combustion engine; that is, it has the lowest calorific value. The result of cutting out the Leyden jars was that when the engine was running light, on weak mixtures, the charge would not ignite, but would ignite regularly when the jars were put in circuit.

Now, in this case, the total quantity of electricity passing in the spark was about the same in each case, but in the one case, with the jars in circuit, the current was large, but lasting only a very short time, whereas in the other case, the current was small, but of long duration, the large current giving infinitely better results.

There is no difference in the nature of the electricity from the magneto or from coil and accumulator; any improvement that a certain magneto may show over a certain coil is simply due to the larger current given by the magneto. An ordinary induction coil and accumulator could without difficulty be designed to give as large a current as any magneto, but this would entail the disadvantage of a large battery current and a coil of increased size. But now, by the addition of Leyden jars, a suitably proportioned coil of not much larger dimensions than usual, and taking no more battery current, can be made to give a far larger current in the spark than a magneto with a corresponding improvement in the ignition. A further fact, especially when running on weak mixtures, is the decided advantage or firing at two points simultaneously.

THE TREMBLER EFFICIENCY

Mr. Watson in referring to his earlier experiments on the fat and lean spark said: "From the results of experiments it would appear that the trembler, although it undoubtedly is an advantage when starting, is apt to introduce very considerable variations in the point of the stroke at which the charge is fired. Hence, on this account a plain coil with a make-and-break is to be preferred, particularly in the case of multi-cylinder engines having separate coils for each cylinder. The ill effects of the trembler will also be felt when a single coil with a high-tension distributor is used unless care is taken to keep the electromotive force of the battery well above the value required to give the critical current below which the trembler ceases to act. There is one disadvantage in the make and break, besides that due to the loss of power of starting on the switch, namely, that with some forms, unless the adjustment is just right, the blade may act as a trembler, giving a spark before the cam on the engineshaft finally breaks the circuit, so that pre-ignition is produced. Since the power developed is not improved by the use of a fat spark, there are many advantages in using a coil which only gives a comparatively small spark, so long as the working of the coil is regular, for such a coil can be designed so that it only consumes a small current. The advantages of a small current are that, in addition to the economy in current, the wear on the points where the current is interrupted, due to sparking can be reduced."

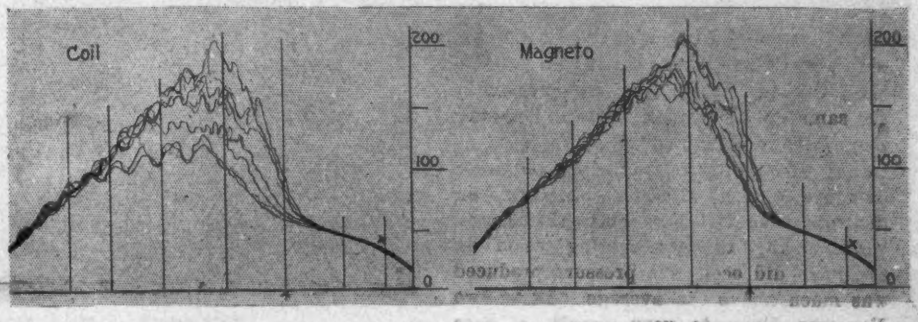
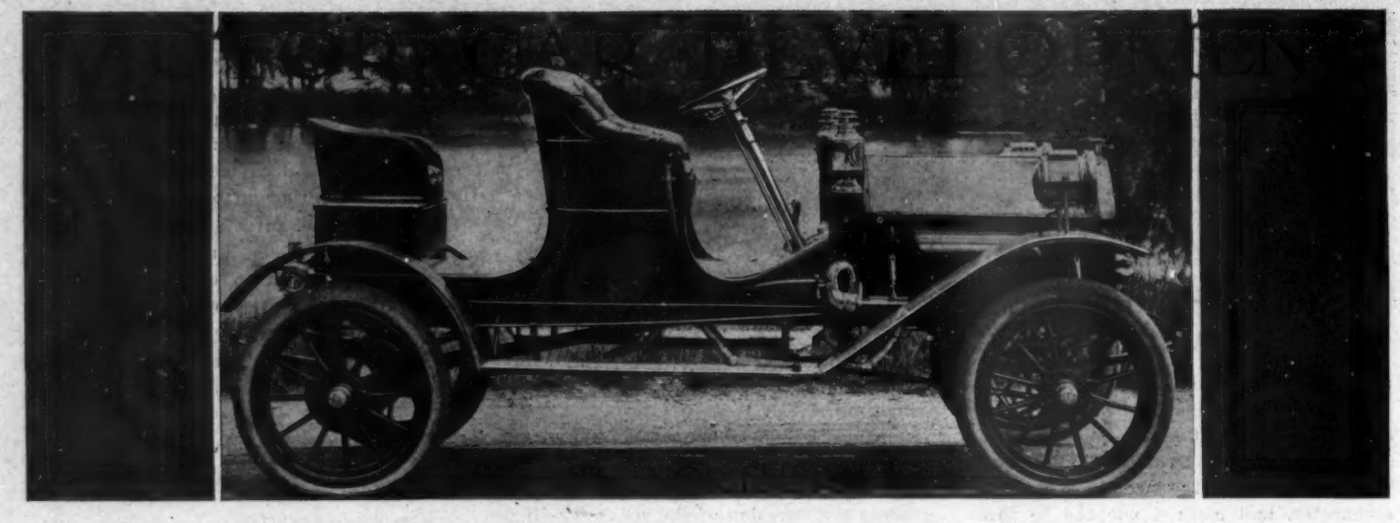


FIGURE 10

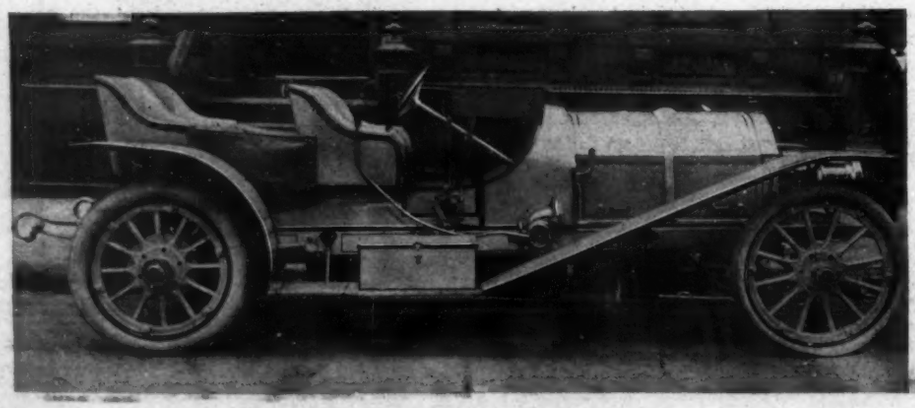


NORTHERN 24-HORSEPOWER, THREE-PASSENGER ROADSTER WITH 1908 IMPROVEMENTS

WITH a factory force of 275 men and with the aid of the almost-human automatic machine, the Northern Motor Car Co. expects to manufacture between its Detroit and Port Huron plants 550 cars for the 1908 trade, 500 of which will be the well-known two-cylinder car and fifty of the four-cylinder type. The two-cylinder machines will be turned out in roadster, touring car and limousine lines. The Northern company must be classed among those makers confining their 1908 improvements to detailed changes and these only discovered after being pointed out by the factory man. The horsepower rating of 22, made use of for the 1907 trade, has been increased to 24 owing to the increasing of the valve diameter, the bore and stroke remaining at 5½ and 5¼ inches—one more example of motor design in which the cylinder diameter is greater than the stroke length or distance of piston travel. To give a greater cooling effect on the radiator the flywheel, heretofore made with twelve spokes angled like propeller blades, has had this number reduced, the engineer claiming thereby to have increased the refrigeration effect of it. Those familiar with the motor will recall the compression lubricator placed on top of the crankcase and very much resembling an integral portion of it. This is now altered and an Essex compression oiler is substituted, with the usual leads connecting with the cylinders and important motor bearings. The pipe connection between the two cylinders and the muffler has been altered by the elimination of a few short sharp angles, the line of exhaust flow now being comparatively straight and uniform. Added to these changes are those of increasing the width of the friction bands in the planetary transmission.

After following the process of evolution in the Northern car for several seasons the natural aphorism to arrive at is that it is a "simple life" car. A view of the stripped chassis is a study in simplicity, with the unit power plant located in front and housed under a bonnet, revealing nothing but a T—the arms being the opposed water-cooled cylinders and the stem the crankcase with its rearward continuation, a case for housing the planetary gearset. The enclosing of all moving parts lends to the simplicity idea and back of the footboard nothing remains but the two long cylindrical mufflers—each 61 inches long—paralleling the propellershaft, one on the right and the other on the left. The frame, as used for several seasons, is continued and consists of angle steel members placed to form a rectangle with the side members straight from end to end, and with very few cross pieces. Looked at from the side the observer cannot but note the use of elliptic springs in the rear, the presence of a straight tubular front axle, and the employment only of compression band brakes operating on cast steel drums carried on the rear road wheels. A closer examination shows that the motor and gearset are carried on a three-point system; two supports where the cylinder heads repose on the side pieces of the frame and the third point of carriage on a cross piece beneath the planetary gearset case. The flywheel occupies its old-time location in front of the crankcase and immediately in rear of the radiator, its presence there eliminating the use of a fan with its driving mechanisms. The Northern float-feed carbureter with auxiliary air valve is in place and gets its gasoline supply from a 10-gallon tank; control of the speeds of the planetary gearset is from a lever on the steering column beneath the hand wheel, leaving the car without a single one of the conventional right side levers. Those simple cylinder mufflers, consisting of two hollow chambers, without baffle plates of any description and arranged in series, necessitating the hot exhaust gases entering one and after expanding therein traversing a short connection into the other muffler, where additional expansion takes place before the gases are liberated into the atmosphere, remain.

The body lines remain much as formerly, but a novelty introduced consists in carrying the acetylene headlights on the top of the front fenders. So locating them has the claimed advantage of giving plenty of freedom for cranking the motor; coupled with a higher position. Placing lamps high eliminates long shadows on the road surface; long shadows often conceal road holes, so the maker points to not a few decided advantages for the gas light on the fender.



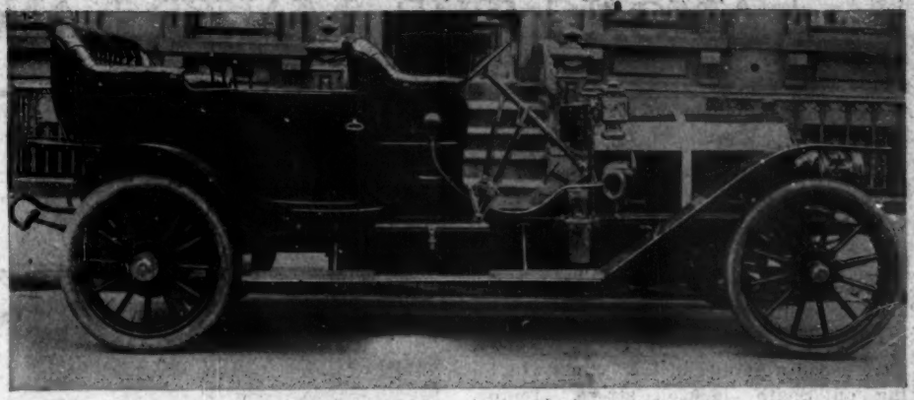
ALLEN-KINGSTON FOUR-PASSENGER ROADSTER

MAJA—A NEW MERCEDES

Herr Jellinek, the inventive genius whose fertile brain conceived many of the world-wide acknowledged features of the Mercedes car, named the Mercedes in honor of his eldest daughter. Now with

the advent of a new 28-35-horsepower car, built in the famous plant of the Daimler Motoren Gesellschaft, Herr Jellinek has bestowed the name Maja on it in honor of his second daughter, whose christian name Maja is pronounced "My-yah." The Maja car differs in not a few details from its older sister Mercedes, chiefly in the employment of either side chain or shaft-drive and further by the employment by make-and-break ignition in which the igniters are carried in housings on the top of the cylinder valve pockets and operated through vertical shafts. But not only is the Maja announcement an important one to motorists the world over because of the improvements it contains in comparison with the Mercedes but it is to be sold direct from the factory through the establishment of branches in all of the leading cities. Already the Maja Co., of London, is in operation and the New York branch, styled the Maja Co., 230 West Fifty-eighth street, has been opened.

The chassis of the Maja is strongly built and the car most comfortable to ride in; the engine is full of life, and the 28-horsepower. In general detail the Maja is almost a facsimile of the Mercedes, but there are one or two interesting features which call for special mention. The most important of these is the method of operating the igniters of the low-tension magneto ignition. Instead of being placed on the side of the combustion chamber and operated by vertical tappet rods, they are now contained within a specially-formed inlet cover. They are connected by means of horizontal tappet rods, all commanded by a double cam which is carried upon the top of a vertical shaft situated between the two pairs of cylinders. This shaft is driven by worm gearing off the inlet valve camshaft, and its position can be varied sufficiently by a sliding and rotary movement to advance or retard the point of ignition to the usual requirement. In order that the firing of each cylinder may be verified without opening the bonnet—as is usually necessary—there are four plugs placed outside the dashboard in such a position that the driver can immediately and separately test each cylinder with a minimum of trouble.



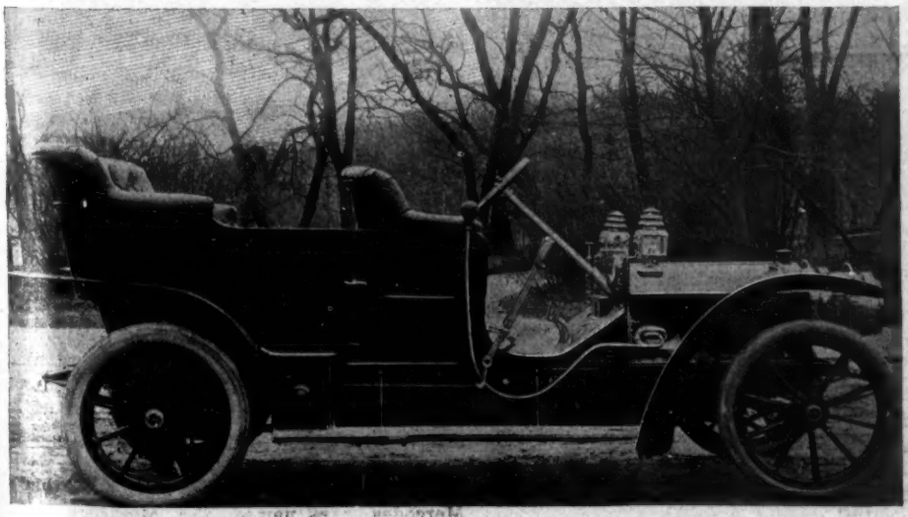
ALLEN-KINGSTON SEVEN-PASSENGER TOURING CAR

ALLEN-KINGSTON CARS

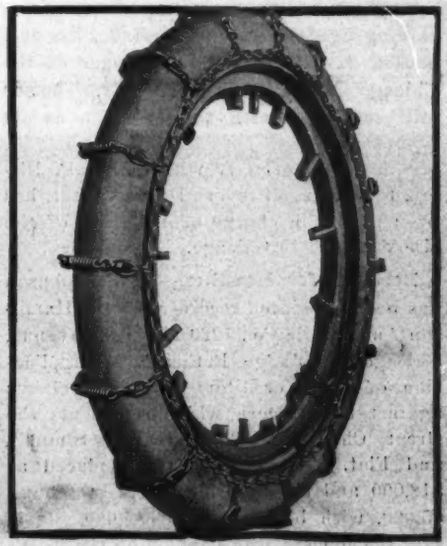
Shown on these pages are the Allen-Kingston roadsters and touring car, both using the same power and transmitting plants but containing those differences of design as dictated by touring car or roadster ideals. The Allen-Kingston car which made so favorable an impression in the east during the summer racing season is not a new design in any sense of the word but rather a car fashioned along conventional lines—a machine with ruggedness and service as its mission rather than glib talking points. The motor of the vertical four-cylinder type with cylinders cast in pairs and valves located on the same side has a double ignition system, one comprising a Bosch magneto outfit, the other a battery and distributor. The flywheel carries a three-disk clutch fitted with cork inserts; four forward speeds are gained through the selective gearset and final drive is by shaft.

THE VICTOR TIRE CHAIN

After having expended months in the perfecting and developing of a tire chain for motor cars the Victor Tire Grip Co., Nashua, N. H., this week announced itself as ready to market its Victor chains through the Factory Sales Corporation, Chicago, Ill. The Victor chain differs considerably from other chains used for anti-skid purposes in that the cross links—those short lengths that lie across the tread of the tire and do the work—are not chain links but case-hardened steel springs connected at each end through a swivel joint with the rim side chains. These side chains also are case-hardened steel, each having a connective link, a simple turnbuckle for adjustment to which the ends of the side chains attach. On this connective is a long link through which passes a flat leather strap which after passing over the wheel rim is slipped through a corresponding link on the other side chain and is then buckled and thereby holds the chain against slipping. The chain is attached without deflating the tire. Owing to the fact that the cross steel springs revolve in their swivel-attached ends makes it impossible for any one part of the spring to take up all of the wear, a fact which should considerably lengthen the life of the spring and consequently that of the entire device. The company has a large factory in course of erection at Nashua, N. H., and for immediate needs has manufacturing facilities of 1,000 sets a week. The factory's manufacturing facilities will exceed this mark.



THE MAJA TOURIST, THE LATEST DAIMLER PRODUCTION



VICTOR TIRE ANTI-SKID

AMONG THE MAKERS AND DEALERS

Interest Sold—Frederic D. Palmer has bought out the interest of Percy S. Palmer in the Martini Import Co., of New York.

In East on Sad Errand—James W. Gilson, secretary of the Mitchell Motor Car Co., was called east last week to attend the funeral of his mother at Hartford.

Opens Holsman Agency—E. J. Manning has opened a garage in the Connery building on South Jackson street, Monroe, Wis. He has the agency for the Holsman.

Church on Honeymoon—A. W. Church, of Wyckoff, Church & Partridge, of New York, who was married recently, spent part of his honeymoon touring through New England in a Stearns. He used a big limousine and with Mrs. Church they visited Boston and had a delightful time motoring to several places from there.

Chicago's Big Sign—One of the attractions along Chicago's row is the huge electric Stewart speedometer sign on the roof of the building occupied by the Excelsior Automobile Supply Co., at 1432 Michigan avenue. It is said to be the largest moving sign in the country, an exact reproduction of the speedometer itself. A huge hand 18 feet in length is in constant operation and the lights can be seen for miles.

Another Legal Tangle—Following an assignment to J. A. Smith, of Cleveland, an involuntary petition in bankruptcy was filed against the Holmes-Booth Auto Co., of Cleveland. Claimants who have signed the petition are as follows: The Diamond Rubber Co., Akron, $907.48; the B. F. Goodrich Co., Akron, $153.59, and the W. M. Pattison Supply Co., $359.78. The cause is based upon the fact that the company committed an act of bankruptcy in making an assignment.

New Managers in Chicago—A. L. Hunter, from the National Cash Register Co., which concern has contributed not a few shining lights to the motor trade, has succeeded A. L. Thomas as manager of the Chicago Franklin branch. Mr. Thomas still continues with the Franklin as its representative in outside territory. J. W. McCausland, formerly with Frank P. Illsley, the Chicago Stevens-Duryea agent, has been placed in charge of the sales of the Knox branch in Chicago.

Receiver for Hamilton—E. H. Johnson has been appointed receiver for the Hamilton Automobile Co., 1220 Michigan avenue, Chicago, by Judge Bethea upon application of three creditors who hold claims against the concern which represents the Great Chadwick, Pennsylvania, Simplex and Fiat. The liabilities are placed at $18,000 and the tangible assets at around $5,000, with book assets of $5,000. It is said the concern was crippled by the Smith & Mabley failure, which cost it in the neighborhood of $12,000. Whether or not the business will be continued depends upon the action of the creditors, who have yet to meet.

E. R. Thomas and His Town Car

Ransom Takes Two Agencies—C. S. Ransom, former manager of the Albany Garage Co., has taken the agency for the Lozier and Stevens-Duryea cars for Albany and vicinity. A Lozier agency has been placed in Washington, D. C., with the Dupont Garage Co.

Shaw Moves—The Walden W. Shaw Co., of Chicago, agent for the Berliet, Premier, Reo and Columbus electric, this week moved into its new building at Michigan avenue and Twenty-first street, thus becoming the southern sentinel of the Windy City row. The place was built especially for the Shaw company, and is said to be one of the best appointed establishments in the west.

Takes Action Regarding Tires—The Swinehart Clincher Tire and Rubber Co. has adopted a novel method of drawing attention to the good qualities of its tires by issuing and circulating the following notice: "Notice that the Auto Truck Owners' Amalgamated Association has adopted the following resolutions: 1—That it will employ only chauffeurs who will exercise good judgment in the handling of motor trucks. Realizing, however, that it may be disappointed once in a while in procuring such, it has adopted the following rules: 'That it will buy only such trucks and tires that are positively known to be foolproof.' 2—Realizing that truck owners are liable for heavy damages on account of trucks skidding, striking other vehicles, endangering both property and life on the streets, it has decided that it will buy only tires that are corrugated on the tread, provided with a central groove in which a hardened chain can be placed whenever the conditions of the streets demand the same, for public safety. 3—That it will exercise due care in selecting chauffeurs who know the difference between a good tire and one not so good, and it will judge his honesty and ability as a chauffeur from the recommendations for accessories that he may make."

Claims He Is Solvent—William H. Harrison, president of the Harrison Automobile Co., whose affairs are now in the United States court at Grand Rapids, Mich., has filed an answer in that court to the petition of several of his creditors who desire to have him adjudged a bankrupt. He claims that he is solvent.

Association Growing—There are thirty-one concerns now on the membership list of the National Retail Automobile Dealers' Association organized during the recent Chicago show and some fifteen others have applied for membership. The next meeting will be held during the 1908 Chicago show. The executive committee, however, will meet early next month. The association announces that "it purposes, if possible, to inaugurate a campaign of enthusiasm and will endeavor through personal correspondence and the trade papers to make this association one of real national character."

Concludes Test—Visitors to the two shows held in New York will recollect the endurance test conducted by the Atwater-Kent Mfg. Works as a demonstration of the high battery economy obtained with the Atwater-Kent spark generator for ignition. It will be recalled that in this test a spark generator was connected with six No. 6 Columbia dry cells, four spark plugs and a Jones speedometer-odometer; the whole apparatus being sealed in a glass cabinet and run by an electric motor during the whole of both shows. At the beginning of the test the batteries tested an average of 16 amperes each, and at the end of the second show, with the odometer reading 4,249.3 miles and the batteries testing over 6 amperes each, the plugs were still sparking. As this test did not prove conclusively how much further the batteries might have run before the spark plugs began to miss, the Atwater-Kent Mfg. Works transferred the entire outfit to the Chicago show, on the opening of which the batteries were again publicly tested, the cabinet resealed and the apparatus started running again. In the 3 weeks between the shows the battery had deteriorated somewhat, so that the cells tested only 4½ amperes average. The odometer was started at 4,249.6 miles, and at 5,328.8 miles the plugs began to miss. On the publicly unsealing the cabinet, the batteries were found to test an average of 3 amperes. In other words, they had lost only 1½ amperes in over 1,000 miles. The

spark generator was in perfect condition, and on inserting fresh cells, regular sparks were obtained without readjustment.

Partnership Dissolved—It is announced that the partnership of Hess & White, of Newark, O., has been dissolved and that the business now is being conducted by Dennis White as White's garage.

Two Taxi Companies—Certificates of incorporation of the Taxi-Motor Cab Co., of New York, and of the Taxi-Motor Cab Co., of Saratoga, were filed recently in the office of the county clerk, Buffalo. The directors are E. McC. Mills, C. J. Hamlin and John J. Henry, for each company.

In New Body Plant—The W. F. Stewart Co., of Flint, Mich., which manufactures motor vehicle bodies, has taken possession of its new factory building at Flint. The new building will accommodate only two departments of the business, the third factory being still occupied. The company has been working overtime.

Handling the Jewel—New agencies for the Jewel have been established as follows: M. L. Robertson, Cullman, Ala.; Freeman-McCabe Co., 455 Golden Gate avenue, San Francisco, Cal.; J. B. McIntosh Auto Co., 199 Jefferson avenue, Detroit, Mich.; O. E. Goodenough, 280 State street, Rochester, N. Y.; Jewel Automobile Co., 481-487 Sterling place, Brooklyn; D. B. Smith & Co., Utica, N. Y.; Shelby Machine and Supply Co., Shelby, N. C.; F. L. Manning, Merna, Neb.; A. L. Hoover, 1720 South Seventeenth street, Lincoln, Neb.; York & Spenny, 1305 North Broadway, Oklahoma City, Okla.; R. H. Magoon Motor Car Co., Cleveland, O.; D. S. Hoover, Crestline, O.; N. W. Neptune, Londonville, O.; G. L. Wirick, Pemberton, O.; Archor & Clark, Farmer's Station, O.; F. Roosa, Conneaut, O.; W. D. Hoge, Rayland, O.; E. V. Hall, Convoy, O.; Frank Geis, Warwick, O.; Andrew & Fite, Georgetown, O.; W. A. Robinson, Steubenville, O.; Malcolm Newstetter, Reading, Pa.; G. A. Wynn, New Florence, Pa.; J. C. Moore, J. C. Moore Hardware Co., Saltsburg, Pa.; W. H. Wolfe, Del Rio, Tex.; R. F. Goodell, Putney, Va.; Porter, Cowper & Co., Norfolk, Va.; Branson & Janda, corner Nineteenth and Ferguson street, Cheyenne, Wyo.; Simplex Motor Co., 165 Fenchurch street, London, E. C., Eng.; L. S. Chibas, Guantanamo, Cuba; E. C. Davidson, Yubucoa, Porto Rico.

Russell With Gearless—H. W. Russell, formerly sales agent for the west for the Acme Motor Car Co., has been appointed manager for the Manhattan Motor Car Co., general distributor for the Gearless cars, with headquarters in Chicago.

An Elmore Test—A regular stock model Elmore recently was connected with six small p[illegible] lamp cells—cells about 1 inch in dia[illegible]eter and 3 or 4 inches long—for the spark-producing current. With these min[illegible]re batteries working through the new [illegible]ion system and the Atwater-Kent generator this stock car was run 212½ miles, it is said, and it is pointed out that the feature of the whole test was the fact that the motor was still running when the run was stopped and when the cells were measured after the car was stopped they showed only 2-10 amperes of current. Since the conclusion of the test conducted at the New York show and at Chicago the Elmore company is planning to make a more practical demonstration to prove that the one at the show was not exceptional.

Norton at the Wheel—W. N. Norton, the newly-appointed superintendent of the Autocar Co., has been officially installed in his new position at the factory in Ardmore, Pa. Mr. Norton has held positions with the Wayne, Corbin and Electric Vehicle Co.

Agency Transferred—The Locomobile agency in Washington, D. C., has been transferred from the Pope Automobile Co., of Washington, to the Luttrell company. The latter has also taken the Packard agency, and in addition to these will also handle the Buick and the Babcock electric.

May Hold Open-Air Show—The board of directors of the New York Automobile Trade Association at its meeting last week considered a suggestion to hold an open-air show and race meet next spring at the Morris Park motordrome. Secretary Stratton was directed to feel the pulse of the trade on the proposition.

Chicago Change—The E. R. Thomas Detroit Co. announces that the agency for the Chicago territory for the Thomas Detroit car will be changed January 1 and that it is the expectation of the company to close a direct agency or possibly open a branch. C. A. Coey, who has the agency now, will continue to handle the Thomas Flyer line.

Would Sell Pope Property—Edward J. Tamlyn, Albert A. Pope and George A. Yule, receivers for the Pope Mfg. Co., have sent a circular letter to the stockholders and creditors of the Pope Mfg. Co. announcing that they have asked the New Jersey courts for power to sell real estate in Syracuse, N. Y., belonging to the company. The property which the receivers desire to sell consists of a building in Syracuse occupied by the E. C. Stearns company, which has been an occupant under a lease which expired August 31 last. The receivers state that the Stearns company owns all the surrounding property and that a sale if made would be for the best interests of the Pope company inasmuch as an offer of $25,000 has been made. Of this amount $20,000 would be paid in cash and the balance of $5,000 in a note.

HUGE ELECTRIC SIGN ON EXCELSIOR AUTOMOBILE SUPPLY CO.'S BUILDING IN CHICAGO ADVERTISING STEWART SPEEDOMETERS

PROS AND CONS OF THE SIX AND FOUR

F. B. Stearns, Glen Muffly, E. W. Stevens, Louis Geyler and T. S. Pfeiffer Express Their Views in Cylinder Controversy

CLEVELAND, O.—Editor Motor Age—Some time ago, knowing that there was a great deal of interest among motorists in general concerning the relative merits of four and six-cylinder cars, I expressed my opinions on this subject in a general way, giving the views of our company on this proposition as a whole. Inasmuch as we are manufacturers of both four and six-cylinder machines we have nothing to gain or lose by the final decision of the public. We feel, however, that we are in a position to take an unprejudiced view of the subject, something which no maker of either fours or sixes exclusively can hope to do. I was very much surprised to note the interest taken in my remarks by the motor public in general and was extremely interested in the views expressed by other manufacturers. I was particularly struck by the attitude taken by two of the latter, both of whom presented the other view of the subject. One of these, who is a maker of both four and six-cylinder cars, and is the pioneer builder of sixes in this country, set forth in a very interesting manner the arguments in favor of the six-cylinder. His views on the subject as a whole are manifestly fair and unprejudiced, and on this account we are more gratified at the compliment which he chose to pay our own six-cylinder in his remarks.

We can hardly say as much of the other maker, who is obviously heart and soul in favor of the six-cylinder proposition. His position in this matter is unique, as we understand that he is now making six-cylinders exclusively, something which no other manufacturer in the world has cared to do.

His article in reply to my remarks assumed apparently a direct attack by me on his product, than which nothing was further from my thoughts. Instead of refuting our general arguments in favor of the four by like arguments in favor of the six, he chose to dissect every statement and twist my meaning to suit his own ends. For example, in my former remarks I made the statement that a six was more difficult to time and had 50 per cent more ignition apparatus than a four. His reply was as follows: "Fifty per cent more ignition apparatus might be taken to mean that if four cylinders require one magneto, six would require one and a half magnetos, and we assume an innocent and unsuspecting public that this fear has no foundation in fact."

We doubt if even a suspecting public would have so construed our meaning! That the ignition mechanism on a six is more elaborate than on a four is self-evident. That an ignition system that "would do" on a four is entirely inadequate for a six is further evidenced by the high-tension magneto system, finally supplied by the above maker of sixes in addition to the battery and coils.

The additional fractional part of a magneto is not required on a six, as our six-cylinder spokesman rightly informs us—a whole and complete system is required, however. What percentage of an ignition system is represented by a magneto can best be determined by "unsuspecting" purchasers of former models of this maker, whose cars lacked this part of the system. However, the need of a magneto for the six is by no means an argument against the six, for a well-designed four-cylinder motor is not considered complete without magneto ignition, although the magneto itself is somewhat simpler. That the correct timing of a six-cylinder motor is more difficult than on a four is beyond question. If not, why the inevitable question of the buyer—"How does she fire?" Why the resulting confusion of the salesman?

The replies made to my arguments by other makers confined themselves mostly to the standard argument for the six—namely, flexibility and power. Unquestionably flexibility and power compatible with simplicity and reliability is the ultimate aim of every motor car designer. Flexibility and power are admitted advantages of the six-cylinder motor, but why to these should be sacrificed simplicity and reliability? Undoubtedly there will be one, two, three, six, eight and even twelve-cylinder motors made for motor cars, all with various arguments in their favor, but the four is and always will be the standard of the world for sane touring-car practice. If flexibility is of any advantage at all, it is at its best in town use and through heavy traffic. Why, then, are all the town cars and taximeter cabs four-cylinders? Isn't it probable that the majority of these cars have attained the required flexibility by other means than the addition of two more cylinders?

Everything else being equal, carburetion is the one thing in a motor car which makes flexibility possible, and which makes the motor run equally well at high and low speeds. Without a charge in adjustment on our carbureter we have obtained a variation in speed of from 150 to 2,000 revolutions per minute with a four-cylinder motor, and with two more cylinders we have not been able to obtain the 50 per cent greater flexibility. In fact, the variation in speed of the two motors is practically the same, and the proportion of the amount of power developed at the lowest speeds is not noticeably different. This difference in the action of the engine rapidly disappears as the motor speeds up, and we believe that with the engine running as low as 250 revolutions no difference can be noticed by the ordinary observer. With the usual reduction in gearing in motor cars as low a speed of the engine as this is never required, and we fail to see how any difference in the handling of the car could be noticed.

We believe that for a six-cylinder motor to be better than a four for motor car purposes its advantages should be apparent to the driver of the car at any and all times and at any and all speeds. Admittedly the six as a motor has its advantages. It also has its disadvantages, and we believe that these are far more apparent to the owner. For instance, a six will start harder than a four because of the additional friction. If this is not the case, why has one maker of sixes equipped his car with a self-starting device, which in itself is a complicated piece of mechanism? But this is of minor importance. Much more than this, will the owner notice the strain on his pocketbook rather than on his arm? This strain comes from an increased first cost and an increased cost of maintenance, which always accompanies additional complications in any kind of machinery.

Invariably the price of six-cylinder machines is much greater than that of fours of equal power. If it does not cost more to produce these six-cylinder cars, why the added cost to the purchaser? It does cost more to produce a six than a four. It costs more because there are more parts, and if there are more parts there is more complication, and if there is more complication there is more trouble, and if

EDITOR'S NOTE—In the opinion of Motor Age it is time this controversy regarding the relative merits of the six and four came to an end. Therefore, no more communications bearing upon this particular phase of the argument will be published.

there is more trouble there are more repair bills. We note from extensive advertising that an exclusive six-cylinder maker is probably anticipating this trouble, as he is offering large rewards "in gold" for good chauffeurs—a plan which, he says, "will benefit the owner." We do not advocate saving money in the first cost of a car; we do advocate paying for quality rather than quantity. We know it is possible to obtain in a four-cylinder by proper design and workmanship the flexibility and power of a good six-cylinder. We advise paying for right design and expert workmanship in the first place, which in the end will be more than paid for by a greater reduced cost of upkeep. It is our belief that this point of view is the correct one for the intelligent purchaser of any motor car. The idea that a new model, and in some cases even a new type, should be produced each year is radically wrong. A maker of sixes today formerly made one cylinder, then twos, then fours and now sixes. The excuse given at each step was that the two corrected the faults of the one, and that the four overcame the difficulties of the two and now the six is the best ever and corrects all the faults of his four.

This line of argument is all wrong. The field for one and two-cylinder motors is in cars of small power, and there are many such successful machines in use today. The field for the six is in cars of extreme power, and there are some of these in successful operation. But the four-cylinder remains as the standard of the world for an ideal powered car and a still further refinement of this type of car is the ultimate aim. There will be one and two-cylinders made, and sixes and even eights, but there is and will be but one standard—the four.

Let me emphasize what I said in my previous remarks—that a good four-cylinder car is good enough for anyone, and that there is no need to desert the four for the six. With a high-class four under the hood it is impossible to detect it from a six at anything above an abnormally low speed. And for this one small advantage the purchaser must pay a higher price, must care for 50 per cent more cylinders, have 50 per cent more reciprocating parts, 50 per cent more valves to grind, 50 per cent more cylinders to clean out, 50 per cent more ignition troubles and if his motor ever goes wrong he has repair bills amounting to 50 per cent more than if he had a four.

In continuing to build both fours and sixes, we have followed the example of such concerns as the Panhard, Renault, and many others of note.—F. B. Stearns.

FIVE-CYLINDER MAKER ARGUES

Dubuque, Iowa—Editor Motor Age—Being interested in the manufacture of the only five-cylinder motors on the market, we are in position to give an unbiased opinion on the relative merits of the four and six-cylinder. The recent articles by F. B. Stearns and the Winton Motor Carriage Co. have interested us to the extent that we hereby volunteer a few remarks, which may be new to some readers. Let it be said before starting that any number of cylinders up to nine or ten could be used on our revolving motor without addition to the electrical or valve-operating devices. We chose five as the least number of cylinders on which the power strokes overlap. The principal weak points of the ordinary four-cylinder motor are that the power strokes do not overlap, and at the very time that no power is being generated the flywheel must be robbed of enough inertia to stop and start all of the pistons. Also the maximum compression comes at a point where the force of the preceding explosion is entirely spent. The six overcomes these difficulties, but loses a point at the same time. In the four-cylinder the pistons are accelerated by the crankshaft at the time of highest explosive pressure, and return part of this inertia to the crankshaft during the latter half of the stroke as the explosive power diminishes. This means that the power transmitted to the crankshaft of the four-cylinder is more uniformly distributed over the effective part of the explosion stroke than in the six. However, the fact still remains that during a brief period of time—about one-tenth of a revolution, or 1-50-second at 300 revolutions per minute—no power is being generated by the four-cylinder motor. This is not serious except when taken in conjunction with the above fact that during this interval between power strokes an extra load is imposed upon the flywheel in the form of inertia and compression. That the weakness of the four-cylinder is due to the power consumed in overcoming inertia and not to the interval betwen effective power strokes is proven by the fact that the old Adams-Farwell three-cylinder motor, not having any reciprocating parts, will pull a load at a slower motor speed than is possible with the usual four-cylinder type, in spite of the longer interval between explosions. More power is wasted in overcoming inertia in the six-cylinder type, but only two pistons stop at the same time, and that while an explosion is taking place so the six runs smoother than the four. The difference is not noticeable except at slow speeds, but as slow motor speed is greatly to be desired the six is superior to the four. Again it can be shown that considerable power is consumed in overcoming inertia, as the five-cylinder Adams-Farwell will pull a load at a slower motor speed than is possible with the ordinary six-cylinder. The advantage gained by eliminating reciprocating parts overbalances the difference in the frequency of impulses. The revolving motor is also aided by a much heavier flywheel, as practically the entire motor revolves about a stationary shaft. A cylinder of a given size will develop the same amount of power whether working alone or in a set of six, other conditions being equal. In fact, the more frequent impulses being conducive to steady running should increase the efficiency of the multiple cylinder motor. Theory and practice do not always agree, however, chiefly because the theory is not complete. Here are a few points to be considered by the advocate of many cylinders: The power from the cylinder next to the load is transmitted through two bends in the crankshaft and one bearing; the power from the next cylinder is transmitted through six bends and two bearings, the third through ten bends and three bearings, and the sixth cylinder must transmit its power through twenty-two bends and six bearings. It is not hard to conceive of a motor so long that the power from the cylinder farthest from the load would be entirely consumed in transmission. In four-cylinder stationary power plants it is customary to apply the load to the middle of the crankshaft. A six-cylinder crankshaft with the driving pulley on one end would call forth severe criticism from designers of stationary engines who must consider efficiency more carefully than do makers of automobile motors. It is claimed that the constant suction of the six-cylinder motor aids carburation. This may be so, but constant suction means that a partial vacuum is constantly maintained in the intake manifold, thus reducing the charge admitted to the cylinders and retarding the piston on the suction stroke. In the four-cylinder motor the gas in the inlet pipe attains considerable velocity before the end of the suction stroke, and as the piston speed decreases this velocity aids in ramming the cylinder full of gas. On the other hand, as the end of the suction stroke is approached in the six, another cylinder starts drawing in a charge, thus reducing the pressure within the manifold in spite of designs calculated to prevent it. Some six-cylinder motors have been found to give better results when equipped with two carbureters to overcome this difficulty. A defender of the six-cylinder type says: "Radiating surface increases as the square, whereas cylinder volume—horsepower—increases as the cube." This calls attention to the fact that more heat units are lost through the cylinder walls of the six than through the walls of a four-cylinder of equal horsepower. As timing gears are set by some one cylinder, we do not see what difference it would make to the mechanic how many cylinders the motor had. As for grinding valves, cleaning spark plugs and looking for knocks or short circuits, there is no reason why a four-cylinder man could not do the work on a six, but, of course, 50 per cent more time would be required. We heartily agree with F. B. Stearns in his statement that passengers and motor should be carried between the axles, but think his compari-

son of a four-cylinder gasoline motor to a four-cylinder steam engine a little overdrawn. We believe, however, that a four-cylinder motor with a liberal flywheel is preferable to the six, unless it is for a high-powered machine with small seating capacity. Personal prejudice may influence the writer in favor of the revolving five-cylinder, but probably there is some reason for being prejudiced in favor of a motor that rivals the six in constant torque and the single cylinder in simplicity. We would be pleased to hear from anyone who can give some new ideas regarding the four, the six or the five-cylinder revolving type of motor.—Glen Muffly, the Adams Co.

IN DEFENSE OF STEARNS

East New Market, Md.—Editor Motor Age—The writer has noted with interest the articles recently published in Motor Age from prominent writers in the employ of as prominent motor car manufacturing firms in response to an article by Frank B. Stearns in which he pointed out with a great deal of foresight and intelligence how the disadvantages arising from an over-cylindered car would largely offset the advantages gained; and in response certain concerns, which for reasons of their own are advocating the six-cylinder car entirely for the coming year, evidently seemed to think there was some sort of an organized plot on foot, gotten up with the express purpose in view of hurting them, and they immediately arose in their wrath to down the offender regardless of right or principles. The first reply to Mr. Stearns by Louis Geyler is hardly worth comment, as the reasons and arguments set forth for the nonfulfillment of the claims made by Mr. Stearns are so devoid of common sense, and show so plainly a lack of any real knowledge of the subject as to condemn themselves at once with any intelligent thinker. Also in a reply to Mr. Stearns by the one writing in the interests of the H. H. Franklin Mfg. Co. there is little comment upon the real facts presented by Mr. Stearns, but is written more in the form of a delineation of the constantly rehashed, so-called advantages gained by the use of the six-cylindered engine, he finally stating that he is able to build a six-cylindered engine lighter than one of four cylinders of ordinary construction. This is, of course, readily possible by the use of the lately developed, expensive special alloys of steel and aluminum, but there are two points claimed by this writer on which a more complete discussion of the subject would certainly be received by the motor car trade with the deepest interest, as this writer's experience has been rather the reverse of others, namely: First, how it is possible to build a six-cylinder motor, same horse power, cheaper than one of the four. But it is especially in response to that lucid and well informed gas engine expert writing in the interests of the Winton Motor Carriage Co. to which the writer wishes to address the following remarks: First, he is not in any way in league with any one or set of individuals nor has any thought or intention of ever robbing the Winton or any other company of any slight prestige which they may have acquired ever entered his head; and second, he is simply an ordinary motor consulting engineer who has happened to have spent 12 years of his time and attention in solving problems met with in gasoline engines, and who is working but with one aim in view, that of the attainment of the highest possible degree of perfection in the internal combustion form of power development, and allow him to lay especial emphasis on the fact that his only reason for writing this—the writer wishes to be pardoned for the use of Winton's very words—"was for fear some reader of Motor Age might take his remarks seriously—hence the necessity of telling the truth." Let us briefly review our visionary correspondent's article of defense of the six-cylinder form of car-propelling motive power, pages 46-47 of the December 7 number of the Motor Age. First, he criticises Mr. Stearns' confession of having been driven into the building of six-cylinder cars because Mr. Stearns refrains from explaining that the reason for the public's demand of such a form of motive power lay in its ignorance of the real requirements. he next criticises Mr. Stearns' term "continuous," giving his definition as "absolutely without pause or break," and although later he claims that the Winton Six-Teen-Six possesses this necessary requirement to a degree of perfection, nevertheless he shows by his cut of the comparative power curves of the four and six-cylinder engines, placed in the lower right hand corner of page 46, that the comparative torque in the two engines is, in reality, so slight as to be practically imperceptible. Next, in criticising the reference Mr. Stearns made regarding the action of his carbureter, he says: "Any remarks relative to carbureters in relation to torque are as irrelevant as a claim of perpetual motion." The writer will refer later to this, only saying here that such a statement being absolutely contrary to the real facts at once establishes the incompetency of the writer to intelligently discuss the subject at all. Next, the over-caustic critic tries, by placing rather a vague construction on Mr. Stearns' example of comparison in supposing a six and one-cylinder motors each to be geared direct, without reduction, to the axle of a car, which is used to illustrate more clearly the final effect of their comparative impulses, and he here even accuses an engineer of Mr. Stearns' ability as not being able to solve a simple problem in arithmetic. But it is when our would-be critic pounces upon Mr. Stearns' statement that it has been his experience that six cylinders of given size will not develop 50 per cent more power than four cylinders of equal dimensions that his discourse really becomes laughable. He calls this "the prize avowal," and continues to "explain" how "no influence on earth can prevent the two additional cylinders from developing 50 per cent more power." Poor uninformed man! Even if the Winton company never has indulged in any scientific research regarding the explosive power of gasoline vapor when excessively diluted with notrogen, nor regarding the action of the "overlapping" effect that the suction of the six cylinders would have on the float feed method of carburation employed by that company, still there certainly should have been a "sneaking suspicion" present in some of the minds employed at the Winton factory that such a thing might exist, and just have been kind enough to have whispered to him not to have "run up against" Mr. Stearns quite so hard on this particular point. In reference to the statement in which Mr. Stearns points out that in the power system the very 50 per cent of the additional parts which are added are those which are generally the ones most subject to wear and derangement, our Winton expert tries to throw discredit upon the statement by endeavoring to point out by some theory which does not apply to the conditions of the case in actual practice at all, concluding with the single objection that "50 per cent more radiating surface is not needed," and concludes by giving "the innocent and unsuspecting public" about the only real information contained in his article: namely: If "a four-cylinder motor required one magneto for its ignition that a six-cylinder motor would not require one and one-half magnetos," when anyone who has ever had the slightest experience with a motor car knows that it is generally in the parts which close and cut out the electrical current wherein the trouble with the ignition apparatus is generally experienced and that it was obviously not the magneto which was referred to by Mr. Stearns. But about this time the fiery eloquence of the objector seems to forsake him, and after making the vague and unreasonable statement that the Winton company has solved all carbureter troubles by a peculiar design of its intake manifold, which he fails to follow up by even a single reasonable argument in proof of his statement, he makes the startling announcement that "the most wonderful racing performance that the world has ever seen—1,581 miles in 24 hours—was done by a six-cylinder car," and he seems to think this conclusive evidence, when in reality he was no doubt referring to S. F. Edge's record made with a six-cylinder Napier car on Brooklands track, London, England, which feat does not in any

manner establish the truth of his arguments for the use of six cylinders, as this test was made on a scientifically banked and perfectly smooth track and was never intended as a comparative test between four and six-cylinder cars, there being no four-cylinder car competing. This feat consequently does not even imply that equally as good a record could not have been made by a four-cylinder car; in truth, this feat speaks for little more than the wonderful possibilities of human endurance in a driver capable of sustaining such excessive speeds for such a length of time. From the above it must not be thought that the writer does not favor the "constant torque" theory striven at by the six-cylinder makers; certainly the theory has many points to commend its universal adoption, but the thing which he wishes to bring out is the mistake made by any one man posing as an authority to deny certain claims made by another earnest gasoline engine student simply because the research of another—in this case that of Mr. Stearns—has extended further and been more thorough than those attained by him. There is no use denying the fact that the continuous but varying suction on the carbureter by the six-cylinder motor is much more liable to interfere with its action than the intermittent suction of the four-cylinder motor, and in the instrument for the accomplishment of carburation used by the Winton company the relative proportions of the mixture are actually made variable by the vibration of the motor, the bounding of the car body on its springs or even the encountering of slight unevenness in the road surface over which the car is traveling. The very crudeness of its carbureting device is further shown by the necessity of having to throttle the engine nearly 50 per cent by the carbureter in order to break up the gasoline into fine drops in order to mix it with the air in the charge to even a slight degree. Of course this can be said also of all other users of the float feed method of carburetion. The writer, like Mr. Stearns, by years of experimenting and research of those difficult problems of carburetion, knows that with a carbureting device which will furnish to the engine a thoroughly homogeneous gas, that it is possible to vary the proportions of gas and pure air in the charge so as to accomplish a more even torque in a four-cylinder engine than is possible in the six of other makers using the carbureter which they do. Another statement made by Mr. Stearns regarding his inability after a year of expert testing to get but a small percentage of power from a six-cylinder engine over that obtainable from one only having four cylinders, same dimensions, and which was received with such scorching criticism by all parties replying, in truth no doubt, if the real experiences of most of the builders of six-cylinder cars were known it would be found that theirs had been about the same as that of Mr. Stearns, for it is a fact little known to what a great extent even a very small additional amount of the burned gases of the previous explosion, if allowed to mix with the fresh charge, will lower the power-producing properties enormously. In the case of those six-cylinder cars in which all six cylinders exhaust in one manifold, it must be remembered that the exhaust valve of one cylinder has not closed when the pressure is suddenly raised by the beginning of another cylinder upon its exhaust stroke; while in the case of six-cylinder cars which have the exhaust piped from each three cylinders, the exhaust does not have a chance to use its cylinder, and upon the inlet valve of the momentum of the gases which act as follows in four-cylinder motors: Two ways are used; if the exhaust valve is made to close upon the upper end of the stroke, it has been found that the valve is really closed just when the inertia of the gases have formed a partial vacuum in the cylinder, and upon the inlet valve of the engine opening the cylinder is consequently filled more completely with the fresh charge than it otherwise would be; the second way is to allow the exhaust valve to remain open shortly after the upper limit of piston travel, and make the inlet valve open slightly before the exhaust valve closes, in which case the inertia of the exhaust gases not only cleans the cylinder of burned gases but tends to draw some of the fresh charge into the cylinder. The last mentioned system is little used except on cars which run their engines at a high rate of speed most of the time, as in the case of cars built especially for racing purposes, as of course the recoil of the gases at low speeeds would fill the cylinder with burned gases. Certainly, in the writer's opinion, the spirit shown by the attack of the Winton company upon Mr. Stearns seems, in view of the present existing conditions, to be entirely wrong and decidedly impracticable, for there remains but little doubt but "that a crisis in the motor car industry is at hand." Almost all car manufacturers have played the game of keeping the public up to the point of paying the high prices which they have done for cars, mainly by springing upon them each year some radical change in motor or other design. The motor car industry is gaining a wider scope; its applications are becoming more numerous; already there is a demand for a low-priced but sufficiently powered car which can be both bought and maintained by the masses for pleasure and commercial purposes; the makers have fought against the introduction of such a car and one completely fulfilling the requirements so far has never been offered, but it must finally come, and when it does there is little doubt but that its motor will be of the two-cycle method of operation; it will have no expensive and complicated method of changing the gear ratio between the engine and the road wheels; its tires will not be pneumatics; but until that comes we must use the more complicated but more practical four-cycle engine, and although very probably next year our Winton correspondent will be advocating the use of eight cylinders for the same reasons that he is now advocating six, it seems to the writer that it would be better policy on his part to be welcoming any information which a conscious authority may care to divulge which tends to bring about the accomplishment of any combination leading toward a greater degree of efficiency or simplicity in design instead of branding each and every man a blackguard simply because he does not agree with them and say that only they are right.—E. W. Stevens.

TWO-CYCLE HIS THEORY

York, Pa.—Editor Motor Age—I have noticed an article in Motor Age of October 24 by Mr. Stearns in regard to four and six-cylinder engines and in the November 14 issue appears an answer by Mr. Wilkinson, of the H. H. Franklin Mfg. Co. In giving the matter a little consideration one plainly can see Mr. Stearns is in the right. He gives one plainly to understand that to receive a steady application of power at the wheels all that is necessary is to overcome the reverse motion caused by the idle or charge-taking stroke of the piston and says the six-cylinder does not overcome the strain any more than the application of a heavy flywheel to a single-cylinder engine of the same type. I have been a reader of Motor Age for at least 5 years past and when I read articles like these just mentioned regarding the reduction of the strain on working parts and giving a steady application of power it appears to me, and must to all who try to understand more than one type of engine, that the majority of our manufacturers today are at least 3 or 4 years behind the times. Anyone who understands the design principle and is acquainted with the results of the Elmore two-cycle engine cannot consider the four-cycle type anything more than an excess of complications designed for a purpose which it has not and never can accomplish. For instance, the four-cycle type has its reverse motion on its bearings at every second stroke and the piston has to work up all of the oil that the upper rings receive. The consequence is that on a hot day the oil will burn away somewhat faster and if one does not feed more the top ring will not get any at all and will have to continue to work on a dry surface. The writer has been in some of the best known four-cycle cars when this was the case. They have two valves to each cylinder which hammer on the cams and seats and continue to get noisier as time passes, that is, if the owner uses his car at all. Now the Elmore engine has no valves, oils with the charge and the top ring receives as much

oil as the one at the bottom. It also does not carbonize, consequently the engine keeps cooler than the four-cycle. The port holes cannot get out of time with the stroke of the piston. You have no reverse motion on the bearings and always fresh clean oil in your engine, for it feeds it as the engine uses it, in fact. I think that if the trade in general knew the advantage of the two-cycle engine which I know has proved itself positively reliable, it would be a rare deal when a manufacturer or dealer would get anything near the price he is asking for cars which have engines of twice the size and weight of the two-cycle of the same horsepower.—T. S. Pfeiffer.

GEYLER ANSWERS BURNELL

Chicago—Editor Motor Age—In a recent issue of Motor Age H. M. Burnell, manager of the Western Motor Car Co., the Stearns agency, replied to my letter to you of some time ago relative to the Stearns defeating the Stevens-Duryea, and I wish to take exception to some of the statements made. He states that on August 3 two Stearns four-cylinder machines easily defeated a Stevens-Duryea six-cylinder in hill-climbing contests, one of which took place in California and the other in New York. The latter was the Fort George hill-climb and to give you the facts of the case I wish to state that the best touring car time made was by the Stevens-Duryea six-cylinder, 36⅕ seconds. This was the Stevens-Duryea light six, which has a 3⅞-inch bore and 4¾-inch stroke, and two Stearns four-cylinder machines made the distance in 32⅖ and 35⅖ seconds, respectively. These two Stearns four-cylinder machines used in this contest had runabout bodies with double seats in the rear and were not regular touring cars. According to the A. L. A. M. power rating there was 10 horsepower more in their four-cylinder cars than the Stevens-Duryea company had in its light six.

The other two Stearns entered in this contest that did not make as good time as the Stevens-Duryea light six were equipped with regular touring car bodies. The picture of Guy Vaughan in Motor Age of August 8 shows the type of roadster used in making the fast time. The Stevens-Duryea light six was a fully-equipped touring car, and, as a matter of fact, made the fastest touring car time on the hill, regardless of power. On its second trial the Stevens-Duryea light six carried five heavy men up the hill all the way on high gear in 49 seconds flat—a feat deemed impossible. The Stearns six-cylinder has a 5⅝-inch bore and made the time in 28⅕ seconds, which was the best time made during the day. According to A. L. A. M. rating this bore develops 69 1-10 horsepower. I believe the showing made by the Stevens-Duryea light six was the best performance of the day, in spite of the fact that it was defeated by two Stearns fours with special bodies. Regarding event 15 at Atlantic City, it is only fair to state the facts. This was a handicap event for cars doing the mile in better than 1:10, as shown in Motor Age of August 8. Here, by handicapping, the stripped big six Stevens-Duryea had to allow Guy Vaughan in his tourabout some 13 seconds' start. The fastest scratch mile made by this special tourabout was 54⅘ seconds from a flying start. This was so far from being a touring car that a fair-minded referee refused to even let the car start in the touring car class and was upheld by the A. A. A. The Stevens-Duryea people do not build racing cars, but the stripped Stevens-Duryea big six, regular stock touring car, was 4⅗ seconds faster with a flying start than Vaughan's four-cylinder Stearns. To be fair, the Stevens-Duryea had 8 horsepower more than the Stearns, according to A. L. A. M. rating.

In speaking of these events it is well to tell all of the truth instead of only part of it. I am in receipt of a letter from the Pacific Motor Car Co., of San Francisco giving me information on the hill-climb held at Whittier Springs on August 3, which was held on Konochis mountain, elevation 4,200 feet, as follows: "The course was 2 miles long and 1 mile from start to finish, air line, having thirty-two very sharp turns and a difference in elevation of 846 feet between the two points. The official time of the different cars was: White, 30 horsepower, 5:56; Stearns, 60 horsepower, 6:00⅘; Tourist, 16 horsepower, 6:35; Stevens-Duryea big six, 7:26. On August 2 en route to the contest, in a collision on Pieta grade, the steering gear on the big six was bent so the car would not turn to the left and, having no appliances at hand to repair it, we were obliged to drive in the contest in this crippled condition. On eleven left turns we were compelled to come to a stop, back up and then go ahead again; on three of these turns we were compelled to back twice before we could get around. Under these unfavorable conditions we were only defeated by 1 minute 25⅘ seconds by the Stearns, which did not stop on the course, climbed the grade on an intermediate gear and caught fire after crossing the line from a badly overheated engine." When Mr. Burnell states that the Stevens-Duryea did not even finish among the first three cars in the Atlantic City race it might have been well for him to mention that this was a handicap event.

Mr. Burnell states that the Stevens-Duryea is not the best car to take up the argument for the six-cylinder, for the reason that the Stevens-Duryea company has never built a large four-cylinder motor. It certainly stands to reason that the manufacturer who has built both types of motors is better able to argue the point than one who is only making a four. Although the Stevens-Duryea people do not believe in a large four-cylinder car—that is a four-cylinder of 40 horsepower or over—they have built a new four-cylinder with a 4¾-inch bore by 4½-inch stroke, which, according to the A. L. A. M. rating, gives the same power as the light six, 36 1-10. This gives two cars of the same power, but they do not for a minute consider that the new four will do the same work as the light six.

As everybody knows, the majority of foreign manufacturers are building six-cylinder cars in connection with their fours, and in the last 5 years the number of makers putting out six-cylinder cars has increased from one or two to over seventy; and in the last four American shows—including licensed and unlicensed—the steady increase of sixes is shown by the following table, compiled from Motor Age:

	1905	1906	Dec., Jan. Oct., Nov. 1906-7	1907
Six cylinders....	2	5	18	46
Four cylinders..	127	256	333	258

This shows forty-six six-cylinder models built by twenty-eight different American manufacturers today; this does not tend to show, as some people seem to think, that the six-cylinder motor car is a passing craze.—Louis Geyler.

WILL INTEREST FARMERS

Milwaukee, Dec. 3.—Under probably the most unique plan that has ever been proposed in the history of the motor car industry, the farmers of Wisconsin will be asked to co-operate with the motorists in a movement for better roads and improved highways for travel. The plan is the product of the brain of Emil Schandein, vice president of the Milwaukee Automobile Club, who presented it to the club for consideration at the last meeting. It was adopted unanimously.

It is proposed to farmers of the various road districts that they comply with certain conditions for the building of highways suitable for modern methods of travel. These conditions will be prepared by a special good roads committee of the M. A. C. The conditions will be no more oppressive than natural, and will require only that roads be put in shape most beneficial to the farmer in his daily needs between his home and his market. Funds to defray expenses will be raised by motor car owners and farmers in the districts where improvement is to be made. People owning summer homes along the beautiful country drives in Wisconsin will be expected to subscribe liberally.

As an incentive to the work, prizes ranging from $250 to $1,000, a grand prize, and cash premiums of $25 will be paid to the districts that make the best improvements within a stated period. The first experiment, already planned, will be carried out between Milwaukee and Oconomowoc, the lake city where President A. J. Earling, of the Chicago, Milwaukee and St. Paul railway, and many other wealthy Chicago and New York people have elaborate country places. The state good roads commission will be asked to co-operate. Farmers will be asked to act as judges of the work in road districts not their own.

LIKES CALCIUM CHLORIDE

Spencer, Ia.—Editor Motor Age—In reading Motor Age I notice many inquiries concerning anti-freezing mixtures, so I will give my experience with a calcium chloride mixture. In the fall of 1905 I purchased a new car, then I ordered calcium chloride, dissolved it, put in some air-slacked lime, stirred it, let it settle, filled my tank and put the rest in some empty maple syrup cans for future use. I added a little to the tank, as it leaked or wasted, and left it in the tank all winter. In the spring as it warmed up I added water instead of the anti-freezing mixture so as the weather got warmer the liquid became weaker. By adding water I had some left in my tin cans all summer. The next fall I made more. I put a weak solution in the tank at first, and made it stronger as the weather got colder. The next spring, 1907, I still had some left in the cans. It had kept all summer in the same tin cans. I am using it again this winter, and I can see no bad results from it. I have never in the time I have used the mixture cleaned out the cooling system. I have had no trouble with clogging up pipes, and I don't know how it will affect rubber tubes. I dissolve the calcium chloride in warm or hot water, throw in several handfuls of lime. More I think will not do any harm. I strain it after it has settled, test it and it is ready for use. If you wish to determine whether there is any acid in the solution, take a small piece of litmus paper and dip it in. If the paper turns red there is acid in the solution; if it remains neutral there is no acid. I have used it to stand 35 degrees below zero the first winter, 20 degrees below the second. The following is the table calcium chloride brine solution:

Calcium chloride to each gallon	Freezing point	Salometer will show
3 pounds	1½° below	88
3½ pounds	8° below	95
4 pounds	17° below	104
4½ pounds	27° below	112
5 pounds	39° below	120
5½ pounds	54° below	124

I always use soft water when I can get it. I also use soft water in the tank in the summer.—H. T. McLane.

POWER COMPARISON

Columbus, Neb.—Editor Motor Age—Please let me know through the columns of the Readers' Clearing House which will develop the more power, a four-cylinder four-cycle motor 3¾ by 3¾ inches or a two-cylinder four-cycle motor 4½ by 5 inches, the compression and number of revolutions being the same in each case—Charles H. Dack.

In the first place the compression and the number of revolutions would not be the same in two motors with such a difference in size. According to the formula adopted by the engineer's branch of the A. L. A. M. the four-cylinder motor would show 22 horsepower and the two-cylinder motor about 17 horsepower, presuming the quality of the workmanship to be first class.

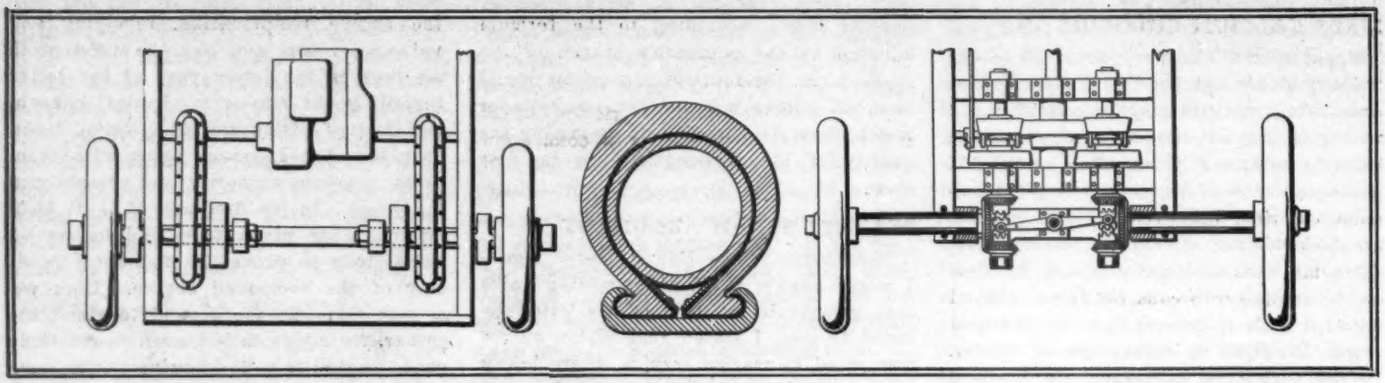
RESUMES STEAM ARGUMENT

Sacramento, Cal.—Editor Motor Age—I would answer C. F. M. regarding valve arrangement in the part of his letter devoted to me. I stated that piston valves were used in marine service where heavy continuous duty is encountered. By that I meant that the engines, whether light and high speed or heavy and slow speed, compound, simple, triple or quadruple expansion, operate for about 90 per cent of their time against a fixed load and very rarely deviate from this load. Furthermore, what shortening of valve travel occurs is merely nominal, and in triple expansion never less than 75 per cent of the full travel of the valves. Again, in the size of valves used in marine service there is ample room for locking rings to take up the ring pressure against the walls of the valve chamber and other apparatus, and yet they will leak under these ideal conditions. In a triple-expansion engine piston valves are found in the high and intermediate cylinders and a slide in the low, and in a quadruple engine all but the fast cylinder have piston valves. If a slide valve is used to relieve condensation in the low-pressure cylinder in the triple expansion, why is one not used in the third cylinder of the quadruple engine, when run under throttled conditions? It is very evident that the slide valve is for other reasons than for the one of floating alone. As regards expansion of adjusted rings in the locomotive, their size restricts such additions to a very slight degree and in a motor car I hardly see where room is gotten to install satisfactory plain rings. As regards C. F. M.'s perfectly-balanced piston valve against a 45 per cent balanced slide valve I will say that 100 per cent is just as easily obtained as 45 per cent, but certain mechanical detail require less. As regards the direct drive referred to by C. M. F., as found in the Stanley car, I will say that the direct drive has nothing to do with the valve gear. These Stanley engines are equipped with plain D slide valves, which are actuated by the usual accepted Stephenson valve gear in its entirety and under a normal pressure of 500 pounds. In racing 1,200 pounds' pressure was used. The direct drive refers to the fact that the horizontal engine is geared direct by spur gear to the differential gear on the rear axle. The engine crankcase incloses the engine reciprocating, revolving and valve-gear parts and also the differential. As regards the latter part of the letter regarding the master mechanics' convention test of piston and slide valve, I can only say that I cannot agree with them as an absolute authority and present the following: In the first part of C. F. M.'s letter he has given facts and figures of actual tests to prove the undoubted economy of the compound engine. Here we at last find common ground to stand together, for my faith is pinned to the compound engine from the marine to the locomotive class. Yet those in high places say no. In response to a letter of inquiry to the mechanical department of the Chicago, Milwaukee and St. Paul railway regarding the economy of the compound locomotive some 6 months ago I said, in part: "We made a close test lasting 3 months in regard to the relative economy of the compound and simple engines. Experiments were made over the same system with the same loads for nearly 100 days. Each engine was furnished with three experts and records were made with reference to every item. It was proven without a trace of doubt that there is no economy in fuel in the compound engine." And this is from higher and more expert people than the master mechanic's report. As regards the compound locomotive, I can positively state from official and personal experience. Their mechanical faults were many, but as numerous as they were a fuel saving was made that was decidedly economical. My personal experience with simple and compound locomotives and piston and slide valves of several years' duration in actual service will form my personal opinion as to facts that no amount of investigating committees will change, for I know what their performance has been when in my charge. After all C. F. M. and I have said for and against each type, we have not settled our point any more than those high in power and authority.—W. R. Harlan.

WILL ACCOMMODATE A. R. K.

Rockford, Ill.—Editor Motor Age—We notice in the issue of November 28 an inquiry from Union Ridge, Md., signed A. R. K., asking for some one to build buggy-type motor cars from individual drawings. We are in position to do that, having had 4 or 5 years' experience in repairing and building motor cars, and should be glad to give him figures, if he will submit his drawings. The Federal Automobile Co., of Chicago, has moved its plant to this city and now is operating here under the firm name of the Rockford Auto and Engine Co., manufacturing the Federal car.—Joslyn Automobile Co.

CURRENT MOTOR CAR PATENTS

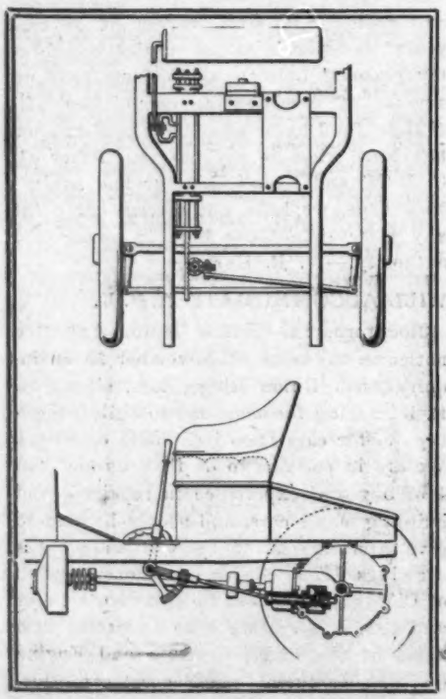


THE BOYER FRICTION TRANSMISSION — HAGSTROM'S TIRE PATCH — BARTL'S COMBINATION AXLE

Friction Transmission—No. 872,219, to A. P. Boyer, Goshen, Ind.—The friction transmission referred to in this patent is carried immediately in front of the rear axle and consists of three parallel longitudinal shafts on each of which are two friction wheels. The center one of the three shafts is the continued crankshaft from the motor and it terminates in front of the axle. On either side of it is a short countershaft with a pair of opposing bevels on the rear end, which bevels are constantly in mesh with bevel pinions on the axleshaft. A clutch is placed so that either of the opposing bevels can be locked to the shaft. When driving forward the forward bevel on the one side and the rear bevel on the other side are meshed in order to give the forward revolution to both wheels; and in reversing an opposite engagement is needed. The changes in speed are obtained by sliding the different friction wheels on the two countershafts into frictional contact with the friction wheels on the continued crankshaft.

Combination Axle—No. 873,405, dated December 10; to F. Bartl, New York, N. Y. —The rear axle is of the live drive type, but has a stationary part for carrying the load of the car. The stationary part is centrally dropped and has a stump at each end forming a bearing for the road wheel. Each stump is bored and takes a short driveshaft for revolving the wheel. On the inner end of each driveshaft is a sprocket for chain drive to the jackshaft, on which shaft is carried the differential gear. Bearings are provided on each side of the wheel on the axle stump and bearings are also provided on each side of the sprocket for chain drive to the jackshaft.

Change Speed Gear—No. 873,461, dated December 10; to M. Sizaire and L. Naudin, Puteaux, Fr.—The patent refers to the change-speed gearset used on the Sizaire & Naudin runabout that made 46 miles per hour in one of the longest European races. The gearset is carried in conjunction with the rear axle and is of the bevel-gear type. In brief it consists of a divided rear axle, a bevel gear secured to this axle through a differential gear, a universally jointed driving shaft connecting between the motor and the gearset, a member capable of sliding longitudinally on this driveshaft, a number of change-speed pinions on this sliding member, a cam device by which the sliding member carrying the change-speed pinions may be displaced to mesh with one or other of its pinions with the bevel gear on the axle, this sliding member receiving through the cam a longitudinal motion for the meshing of the pinions and also a lateral or sidewise movement so as to give perfect engagement. The set is in brief a bevel set with a longitudinal and lateral movement so as to mesh the bevels without danger of chipping the teeth.

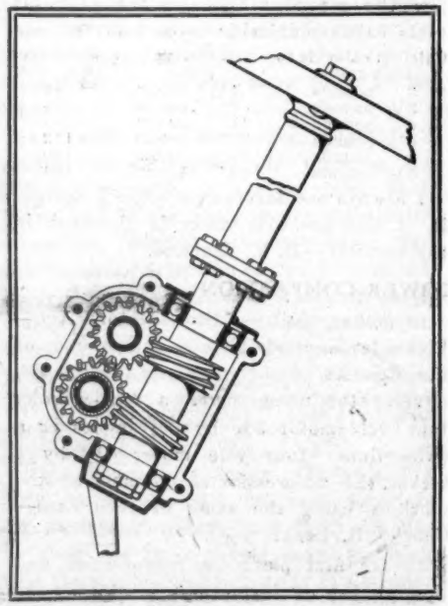


NAUDIN GEARSET — JOHNSON'S STEERING GEAR

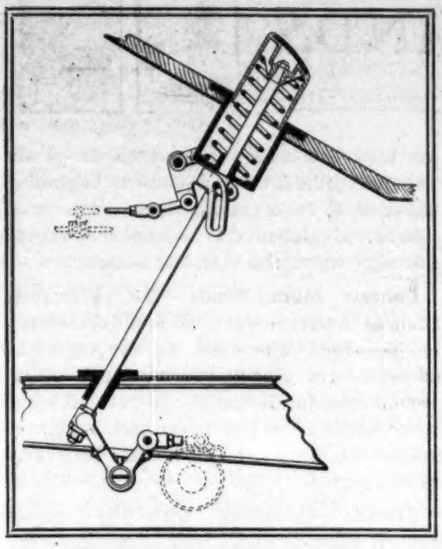
Ellsworth Steering Gear—No. 873,526, dated December 10; to T. J. Fay, New York city, and J. M. Ellsworth, Bernardsville, N. J.—On the bottom end of the steering pillar are two worms—one a right-hand thread, the other a left-hand thread. These worms mesh with gears and from the gears is connection with the steering knuckles.

Tire Patch—No. 871,930, dated November 26; to G. Hagstrom and E. Hagstrom, Linsberg, Kan.—The patch in question is intended to be placed between the air tube of a pneumatic tire and the wheel rim and consists of a V portion for embracing the air tube and a pair of lips that fit over the lips of the tire casing resting between them and the wheel rim and serving to hold the tire patch in position.

Frame Buffer—No. 873,544, dated December 10; to R. W. Harroun, Chicago, Ill. —This patent refers to a buffer rod carried across the forward end of a car frame and which extends further to the front than the lamps so in case of accident the buffer takes the impact and frees the lamps. In order to absorb shocks the buffer attaches to each side member of the



THE ELLSWORTH STEERING GEAR



WORTHINGTON'S CONTROL DEVICE

frame through a bolt passing through a pair of sockets on the side of the frame with a coil spring surrounding the bolt to absorb the jar.

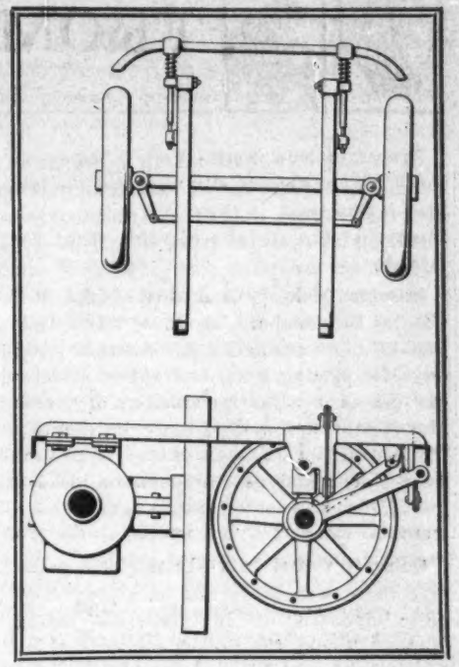
Pneumatic Steering Gear—No. 872,820, dated December 3; to J. T. Johnson, Memphis, Tenn.—Instead of turning the front wheels of a motor car to the right or left through a hand steering wheel a system of compressed air acting in a cylinder upon a couple of pistons is used to accomplish the same results, the work of the driver consisting of operating a couple of valves for controlling the air passage into one or the opposite end of the cylinder. The compressed air is carried in a large chassis reservoir and the working cylinder is divided into two compartments, each in communication with the air pressure. The piston rod carrying the two pistons extends forward over the front axle and carries a rack which meshes with a pinion on a short vertical shaft. On the lower end of this shaft is connection with the drag link or tie rod connecting the steering knuckles.

Friction Transmission—No. 872,881, dated December 3; to A. Ziska, Chicago, Ill.—The transmission described is that used on the Rockford motor buggy. The engine is a two-cylinder one placed longitudinally on the car frame amidship and with its crankshaft carried transversely. On the end of the crankshaft is a large friction disk. Adapted to travel across the face of this disk is a friction wheel carried on the forward half of the driveshaft extending to the rear axle. The friction wheel can be slid back and forth on its shaft to give speed variations, and through a cam is moved laterally into engagement with the face of the friction disk. The driveshaft is in two parts, connected by a universal joint, the forward part carrying the sliding friction wheel and the rear part forming a connection with the back axle.

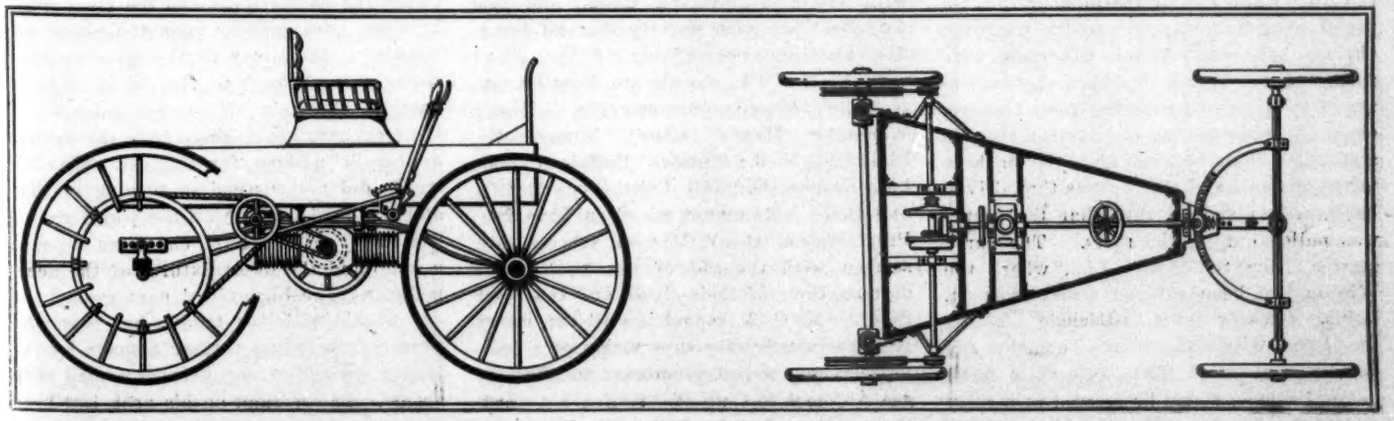
Foster Shock Absorber—No. 872,808, dated December 3; to C. H. Foster, Cleveland, O.—In this shock absorber a cylinder is attached to the car axle and a piston rod with piston acting in the cylinder connected through a bracket with the car frame. The bracket has a longitudinal slot in which works a pin carried in the top of the piston rod. The piston has a number of perforations in it; and a disk valve resting on the face of this piston is adapted to nearly cover the perforations in the piston. This disk valve has an opening to permit of its application to the piston rod and on the piston rod is a stop to limit the separation of the piston and the disk valve.

Reach Spring Suspension—No. 870,459, dated November 5; to G. P. Parks, Bedford, Ind.—The patent refers to a spring suspension on a motor car in which are used reach springs or inverted semi-elliptic springs which extend from the front to the rear axle on each side of the body. The forward ends of the springs attach direct to the front axle but the rear ends terminate in plates in each of which is a series of holes longitudinally of the car. On the rear axle is a bracket with pin attachment for entering any of the holes; on the spring and lever, arrangements are furnished whereby the rear axle can be swung back and forward to tighten or slacken the drive on the belts or ropes from the counter shaft to the wheels. By changing the position of the axle on the spring plate the wheelbase can be varied.

Hydraulic Transmission—No. 872,203, dated November 26; to V. C. Shanks, St. Louis, Mo.—A vertical cylinder motor is carried in front. On the rear end of the crankshaft is a pump with reversing blades. The liquid from this pump is circulated through pipes connecting with hydraulic motors attached to the rear wheels. By reversing the pump blades a reverse movement is accomplished. The speeds is accomplished by the position of the pump blades. The pump comprises a shell with plates fixed to the sides of it and the plates having openings in their centers. Another or second set of plates is arranged to slide against the inner face of the plate secured to the sides of the pump shell or casing, these plates having projections for extending through the openings in the first set of plates. A third pair of plates is rigidly arranged within the pump shell and bear against the inner face of the second set of plates, there being openings in the center of the third set of plates. A shaft passes transversely through the shell. Fixed to this shaft is a cylindrical piston which is connected to the second set of plates. Also used is a series of radially arranged plates carried by the piston. Shoes are hinged to the outer ends of these plates and guide plates are fixed on the side plates of the pump shell.



HARROUN'S BUFFER ZISK'S FRICTION SET



PARK'S ADJUSTABLE REACH SPRING SUSPENSION DEARING'S DESIGN FOR LIGHT MOTOR BUGGIES

FROM THE FOUR WINDS

Breyer in New York—Victor Breyer, of Paris, who so successfully managed the last grand prix, was in New York last week reporting the 6-day bicycle race for L'Auto.

Mischief-Maker Punished—It cost Charles Brandenburg, of Silver Lake, Ind., just $1 and costs and a jail sentence of 10 days for placing a log in front of a motor car driven by Charles Olinger, of North Manchester, a few days ago. Fortunately the obstruction was seen in time to prevent an accident and as Brandenburg pleaded guilty, he was let off with light punishment.

Going in Grand Prix—In the 1908 grand prix there will be several cars previously quite unheard of in first-class racing events. Among the French concerns which are seriously thinking of putting two and three cars in the race may be mentioned the Regina-Dixi, the Buire and the Pilain, in addition to those which took part last season, while the Mors is stated to be entering the racing field again. Among others there are the Opel and the Benz, which shone in the German events last season. As regards the course, it is pretty certain that the Dieppe circuit will be again chosen for the 1908 race, since it has been stated by more than one member of the sportive commission that it is the only one which will produce cash receipts, without which the greatest race in the world would be a financial failure.

Adventurous Trip—W. H. Buckley, has just returned from a 6 weeks' motor trip into the Priest lake district, northeast of Spokane, where he drove the first motor car that has ever made the trip successfully without the help of horses. The drive over the hilly road was through dense forests. Because of the short turns in the road, the fenders were torn from the machine by contact with the thickets bordering the path. One hill in the road was so steep that the party was forced to tie a small tree to the rear of the Winton, lock the wheels and practically slide all the way, while two of the number rode on the tree to make it dig into the roadway. On another occasion the motorists were forced to pull stumps standing in the center of the road and blocking their passage. On these occasions the car was run close to a stump, a chain was run from the machine to the obstacle and the car was then driven backward at such a rate that the stump was pulled out by the roots. The party started from Sandpoint, Ida., where the Winton had been shipped direct from St. Louis. Buckley drove to Laclede, crossing the Pend d'Oreille river. Then he ran down the river to Carry's ferry, 4 miles below Laclede, where he crossed in a ferry which the tourists were forced to paddle across by hand. After the run to Priest river that day the hard trip to Priest lake was begun. The Buckley party included J. H. Perry, R. Olney, C. Vangundy and Harvey Wright, of Spokane.

Will Eliminate a Grade—At the request of General Manager Pardington, of the Long Island Parkway, the Oyster Bay officials have appointed a committee to confer with the parkway company and the L. I. R. R. in the matter of eliminating the dangerous grade crossing at Central park, which is used by all motorists passing through the island.

Shortening a Road—Historic Lolo trail, the highway over which the Nez Perces warriors marched for generations every summer to fight the tribes in the region now forming the state of Montana, and on which Lewis and Clark found the gateway to the Pacific northwest a hundred years ago, and which in 1877 became the line of march for General O. O. Howard in his pursuit of Chief Joseph's hostile tribesmen into the panhandle of Idaho, east of Spokane, is being opened to its original width of 20 feet by the federal government. The work is being done by the forest reserve department and will be completed next year. The distance from Greer to the Lolo pass is 110 miles, but this will be shortened by fully 50 miles when the Lolo trail is opened, and it will be a great benefit to the country, aside from adding to the convenience of handling forest reserve work in that territory.

Y. M. C. A. Schools—There are now nineteen motor car schools conducted by Y. M. C. A. branches in various parts of the country, according to statistics on file at the New York city headquarters of the association, and last year these had an aggregate attendance of 1,643 students. The West Side Y. M. C. A., at 320 West Fifty-seventh street, Manhattan, has by far the largest school, with 819 students, a number nearly equal to the total of all the other schools combined. Boston comes next, with 274 students, then Cleveland, with 126 and Hartford, Conn., and Los Angeles, Cal., with seventy-one and forty-five students respectively. Other cities with Y. M. C. A. schools are New Haven, Holyoke, Mass.; Summerville, Mass.; Worcester, Mass.; Detroit, Minneapolis, Plainfield, N. J.; Trenton, Buffalo Columbus, Dayton, O.; Salt Lake City, Seattle, and there is the new school in Brooklyn. Practically all the Y. M. C. A. schools were started with the aid of the local motor organizations of their cities, and the West Side Y. M. C. A. school is still run under the general advisory supervision of a committee composed of prominent members of the Automobile Club of America. According to the enrollments in the fall terms of the school this year and the large advance enrollment for the term beginning January 6, it is believed that the total number of students this year will exceed the high water mark of last season.

Cancels More Bonds—The Automobile Club of America gave its first ladies' day on Tuesday. The club, by the way, has cancelled the second $20,000 block of its second mortage bonds it has paid off since it moved into its new house last April. It proposes to hold a bond-burning fest early in January.

French Spreading Out—The recent French salon brought into prominence the fact that many French concerns have established branches abroad, organized under the laws of the foreign land of their adoption in companies which will presumably have liberty of action as regards design and price of cars once they feel their feet in their new abodes. In England it is now ruled that a patent to be valid must have its subject matter manufactured in that country. This accounts for a rush of French makers to protect their patents by manufacturing in England which has been noticed of late.

Elephant on Rampage—The following story from the Bangkok Times, of Bangkok, Siam, shows that the motorist of that country is not even immune from the elephant: "There are at the present time but two genuine white elephants in captivity in Siam and these are the property of the king. They are kept in sumptuous quarters and are given all the care and attention due their royal station. Every day they are taken out and exercised in solemn dignity. It was during one of these afternoon parades that Mr. Edwards' trouble arose. The appended article tells the story: C. G. Edwards, in his 16-horsepower Rambler runabout, had a narrow escape this morning from the attacks of an angry elephant. He was driving away from the Permane grounds, where he had been seeing to the training of his pony and was making for the street that runs between the palace walls and the river when he came unexpectedly upon the white elephants on their way to the river to have their morning bath. Not being able to pass, he threw in his reverse, but one of the elephants broke away from the drivers and made a dash for the car. Mr. Edwards did not succeed in turning in time and the elephant tore off the wheel guards and in trying to hit the chauffeur smashed a lamp and the brass fixtures of the accumulator. The big animal next pushed the car ahead with his trunk, but was prevented from doing further damage by the timely arrival of the keepers armed with spears. The mahout on his neck had been doing everything possible to keep him un-

der control, but with a tusk of the big angry beast at one time inside the car the position looked very dangerous indeed. Fortunately, however, the total damage was surprisingly little."

Talks on Travel—O. F. Austin, chief of the bureau of statistics of the department of commerce and labor, gave a lecture at the Automobile Club of America on Tuesday evening on methods of travel in curious corners of the world.

Again to the Fore—Motor cars played a prominent part in the election of Mayor Hibbard in Boston last week. The mayor-elect owns a fine touring car in which he made many trips about the city campaigning and on election day it was in use keeping track of the voting in the various wards. Mayor Fitzgerald, who was defeated, also owns a big car and it was in use day and night during the campaign. During Mayor Fitzgerald's administration several motor cars were installed in the city service. There are some in the fire department, police department, hospital department and other services, making more than a score in all.

Unique Test Made—A few days ago H. E. Randolph, president of the Acme Spring Check Co., had an argument with an owner which resulted in a bet and a unique test. Mr. Randolph claimed that the Shocsorber made riding under all rough-and-ready conditions perfectly comfortable and easy. The motorist was skeptical, so Mr. Randolph offered to equip the man's car with Shocsorbers and, after placing a basket of eggs in the tonneau, submit the car to the test of running at 15 miles an hour over a 10-inch bump in the road. He bet that none of the eggs would be broken. The Shocsorbers were put on the car and the test was made in the Bronx. On examination only one egg out of the twenty-five in the basket was found to be slightly cracked. Mr. Randolph, of course, lost his bet, but he made a sale.

One of Maxim's Tips—H. P. Maxim gives out the following tip: "Now that the weather is down close to the zero mark, drivers and owners, unless they are wise to the game, will doubtless experience more or less trouble in starting a gasoline car, especially if the machine is housed in an unheated stable. Of course it is necessary to make use of an alcohol solution which will circulate freely when the engine is turning. I have followed out one method that is both simple and sure and I have no more difficulty in starting my four-cylinder machine at 10 below zero than I would at 90 in the shade. I take an ordinary household kettle of boiling water and pour it slowly over the carbureter and inlet manifold and by the time I have used all the water these members are warmed up. To make sure that the cold oil has not insulated my magneto shaft I squirt a drop or two of gasoline on the shaft of the latter just where it comes out of the bearing. This cuts the oil and makes sure of a good contact for the ground return in the magneto. Then when you turn the engine over, you will note that everything works very smoothly. I would recommend this mode of procedure to those who have never tried it. It will save a lot of cranking."

Wexford in Line—The county road system may be adopted by Wexford county, Mich. Agitation toward such a step was started at a recent county road institute conducted by State Highway Commissioner Horatio S. Earle.

After a Boulevard—F. W. Hackell, M. R. Eaton and J. R. White, representing the Niagara Falls board of trade, have been appointed to confer with the Automobile Club of Buffalo with reference to a Buffalo-Niagara Falls boulevard, and to devise means to bring the idea into material form.

For Baseball Fans' Use—The owners of the Indianapolis Baseball Club are preparing to build a drive for the exclusive use of motor cars at the ball park. Heretofore, persons driving to the ball park in motor cars have been compelled to leave their cars standing in the street at the risk of having them tampered with. The new drive will increase the capacity of the grounds by about 2,200 persons, and owners can sit in their cars and watch the game from an advantageous point of view.

Big Mileage by Woman—Mrs. Myra E. Roach, 3203 McKinley boulevard, Milwaukee, claims the distinction of being the only woman in the United States who has driven one two-cylinder car over 20,000 miles in three consecutive seasons. Mrs. Roach drove a Rambler surrey type. The average gasoline consumption was 15 miles to the gallon. In the first season she drove 8,000 miles. During the following year her record was 6,000 miles and in 1907 she drove it 6,000 miles more. Mrs. Roach has qualified for membership in the Rambler Fifteen Thousand-Mile Club, into which Thomas B. Jeffery & Co. will admit only those who have driven a Rambler car over 15,000 miles.

Run Stopped by Blizzard—A howling blizzard compelled the indefinite postponement of the legal speed limit run of the Automobile Club of Philadelphia, which was to have been run off last Saturday. In all likelihood the event will not take place until the roads dry out next spring. Meanwhile, the Philadelphians, glorying in having passed the half-thousand mark in membership, are continuing their recruiting efforts with the avowed intention of doubling their present membership within the next 3 years. The club is exhibiting a liveliness in all branches of the game which is attracting to it all the more prominent local devotees of the sport. At the last monthly meeting the sum of $200 was voted the signboard committee to carry on its work of marking all the prominent roads leading into the city, and a donation of $100 was sent to the Automobile Club of Delaware county to assist the road improvement work of that hustling organization. The next banquet of the A. C. of P. will be the largest affair of the kind in the club's history. The governor, mayor and other prominent state and city officials will be present, besides many motorists of national renown.

Fast Work by Stoddard—Details of the recent Riverside Box Springs hill-climb have reached the Dayton Motor Car Co. from its Pacific coast representative, Norman W. Church, who describes the sweep made by the 8-K Stoddard-Dayton roadster, which won the $2,500 class, the $3,000 class and the free-for-all. The Box Springs course is nearly 4 miles in length, with a grade varying from 7 to 9 per cent, yet the Stoddard won the $2,500 class in 5 minutes 31½ seconds, exactly 10 seconds faster than the previous record made a year ago by a Stevens-Duryea six. In the $3,000 class the Stoddard did 5 minutes 23 seconds, beating among others a Haynes roadster. In the free-for-all the Stoddard had a walkover, the others scratching. In this it did still better, cutting the record to 5 minutes 21½ seconds.

Helps the Firemen—Fire Chief Croker once said that hundreds of lives and hundreds of thousands of dollars worth of property have been endangered and lost because, when the fire apparatus arrived on the scene the hydrant was found to be frozen hard. In New York city a series of tests is being made of a newly-invented apparatus for ascertaining whether a fire hydrant is frozen or not and for preventing it from freezing. The device consists of a pump attached to the two-cycle motor of an Atlas runabout. The pump compresses air into a high-pressure tank. This air pressure, when applied to the fire plug, immediately discloses whether the hydrant is frozen or not. Furthermore, freezing is prevented after the air pressure has been applied to blow out superfluous water above the frost line. The apparatus is the invention of a Columbia university professor.

May Have a Home—The last meeting of the Quaker City Motor Club furnished a surprise to the majority of the members in attendance, when a report was read recommending early removal to a house, located near the center of the city, which can be secured on lease at reasonable terms. While the exact location, for obvious reasons, was not made known, it was intimated that the house in question is not far from the corner of Broadway and Walnut streets; that it is of ample size to accommodate a club of 500 members, and that the necessary alterations could be made speedily and at a not too exorbitant figure. Among the proposed improvements are the installation of a swimming pool in the basement and the establishment of a cafe on one of the upper floors. The matter will be laid before the club at its next meeting, and in the event of favorable action the Quakers will be in a home of their own before the winter ends, it is anticipated by the officers.

LEGAL LIGHTS AND SIDE LIGHTS

NEW LAW WORKS WELL

The new vehicle ordinance of the city of Grand Rapids, Mich., although it has been in operation for little more than a month, has proved a success in preventing collisions and congestion of traffic and has been a factor in keeping the streets clear. The ordinance, which was passed to include all drivers, either chauffeurs or drivers of horses, has caused a swelling of the police court finances, but this has not been all done by motor car drivers. Those who handle horses have been in the majority, showing that the poor abused driver of a horse is not always the blameless one when there is an accidental collision between himself and motor cars. The motorists, as a rule, are carefully obeying the law. The one feature of the new ordinance which has caused much unfavorable comment is the provision which has set the age at which one may drive a car at 16 years. This clause provides, however, that a person under 16 years of age may obtain a permit to drive a car from the board of police and fire commissioners, providing he or she is capable of so doing. In this connection the board has fixed the absolute limit at 15 years and has provided that a person under the age of 16 years may only obtain a permit by presenting a certificate of good character and capability signed by at least three owners of motor cars. This certificate must contain the statements of the signers that the applicant is trustworthy and capable of driving a car. When the ordinance was first enforced both motor drivers and team owners protested at what they termed a freak law. When the law had been in force for some time, however, it was seen that the provisions of the new ordinance only required a little common sense to obey and now all are satisfied excepting, perhaps, those who forget and swell the library fund with a police court fine as a consequence. It is merely a matter of "After you, my dear Gaston," once in a while, instead of "Get out of my way."

PAYS FOR HIS FUN

Judge George W. Wheeler, of the superior court of the county of Hartford, Conn., has absolutely no sympathy for a man who steals another's car and feels disposed to deal with him as one would with a horse thief. "If a man steals a motor car or makes off with it without the owner's permission, jail him," says the judge. It is doubtful if one Thomas Clemens will feel disposed to make off with someone else's machine again. On September 1 Clemens took without permission a Knox car from the Miner garage, where he was employed. Subsequently he came to grief, for the car caught fire and was badly damaged. Mr. Miner had Clemens up before Judge Garvan, of the Hartford police court, for running away with the car. The judge promptly imposed a fine of $20 and costs. The accused appealed the case, which came up before Judge Wheeler of the criminal session. Judge Wheeler sustained the sentence imposed by the lower court when Clemens admitted he took the car without the owner's permission. Not only that, but he sent Clemens to jail for 45 days, incidentally remarking that thefts of motor cars are becoming too common and the only effectual method of discouraging the practice is by jail sentence.

BAY STATE MEANS BUSINESS

The Massachusetts highway commission has given another evidence that it means to have the laws of the Bay State enforced by disciplining several motorists who were found to have been rather reckless in driving their cars. The Safe Roads Association was instrumental to a great extent in getting the commission to take up the cases. Matthew P. Whittall, of Worcester, was informed that his license had been revoked and that any application for a renewal within 4 months' time would not be considered by the commission. Dossel Drisko is another who lost his license, he having been convicted and fined for speeding at Hingham. The third person to be deprived of a chance to operate a car was Byron Chandler, of North Reading. He has been doing some spectacular driving in and about Boston. He is a wealthy young man and has owned several motor cars. He was charged with operating a motor car in an improper manner and his license has been suspended from December 1 until March 1 next.

NANTUCKET AGAIN

Nantucket still insists on trying to keep its shore sacred from the motor car. Despite the fact that F. J. Tyler, of Boston, won a victory in court that put out of commission the ordinance framed by the selectmen there last summer, another ordinance has been passed that seems destined to bring about another war between motorists and Nantucketers. Just at present no one wants to go to the island to motor and the selectmen took advantage of the absence of tourists to pass another bill. It picks out various sections of the road and forbids cars on them, and as a car has to go over these stretches to get to the towns it seems prohibitive. But the legal lights in Boston got busy and a petition with the names of more than 100 taxpayers of Nantucket was secured to a protest that is now lodged with the highway commission. Action will be taken soon.

MUST STOP ON SIGNAL

On a judgment quashing an affidavit from the De Kalb county court, the Indiana supreme court at Indianapolis last week reversed the decision and upheld that section of the motor law requiring a driver to stop his car when signaled by the driver of a horse. An affidavit was filed some months ago by Rosa and Josie Case, two young women of De Kalb county, who said that while they were driving Samuel Goodwin refused to stop his car when signaled. The lower court quashed the affidavit because the signal had not been given by the driver, but by another occupant of the buggy. The decision said, in part: "It is obvious that the legislative purpose in enacting the law under consideration was to provide protection to travelers on the public highway by vehicle from the dangers incident to the animal attached to such vehicles, becoming frightened at the approach of a motor car. It is hardly too much to say that it was the legislative view that when a driver of a car is appealed to to stop when approaching a vehicle drawn by a frightened animal, if his sense of moral or social duty is not strong enough to induce him to do so, the rigor of the law should be interposed." The decision probably will mean Goodwin will have to submit to trial by the lower court in the near future.

MUST MEND THE ROAD

County Judge Ross, of Syracuse, has handed down a decision which is of interest to motorists going over toll roads and of particular interest to those who have traveled from one side of New York state to the other, as they have passed over the road in question extending from Fayetteville to Syracuse. An action was brought by the highway commissioners to compel the company to put the road in shape. Judge Ross decides that the Fayetteville Turnpike Co. will either have to repair its road and put in a new bridge or else throw up the toll gates and stop charging for the privilege of going over the road. The court said the evidence put in for the owners would justify a finding that it was as smooth as a newly laid pavement, but the court inspected the road in question and found it was not only out of repair but one of the bridges was dangerous and must be replaced. He said that the argument of the defendant that the bridge had never fallen and that it had borne tests with great weight upon it would apply to every structure that has ever fallen up to one second before it fell. The use of broken stone in the road, left unrolled and uncovered, the court thinks, is an improper method of road construction and in making his decision he gave this consideration.

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The EXCELSIOR LIVE WIRE is a new ignition device designed to increase the commercial speed and power of every man that reads this page.

To you, our customers and friends who glance these columns over, we extend a sincere invitation to send us your honest criticisms and your frank suggestions. We'll appreciate them, for they'll help us make the LIVE WIRE give out a little hotter spark.

Edited by R. B. Wrigley,
Manager Publicity Department,
EXCELSIOR SUPPLY COMPANY.

MERRY CHRISTMAS

Three hundred of us here in this busy beehive on Randolph street send you our heartfelt Christmas greetings.

We hope that every one of you, from Cape Cod to the Golden Gate, and from the rocky bluffs of Duluth to the torrid valleys of Mexico, will have a happier, brighter Christmas this year than you have ever had before.

And as you gather about your Christmas boards to carve round and juicy turkeys and take two helpings of Christmas pudding, don't forget that there's a bunch of Excelsior folks here in old Chicago that wish you the very limit of happiness and good cheer. Merry Christmas!

WE'RE MOVING

We're moving this week.

No, not away from "233-235-237"—just some inside moving. We had to have more room for our Automobile Department, and also for our Bicycle Department, so we secured an extra floor of warehouse space outside for some of our reserve stock, and now we're laying things out so you can't worry us, no matter how fast you jam the orders in.

It's surprising the way our business has grown. Fifty-seven per cent more business in the fall of 1907 than in the fall of 1906! Isn't that a record? Doesn't look very much like hard times, does it? We appreciate the business, gentlemen. We appreciate every dollar's worth of patronage you give us. And we're going to do more for you in price, quality and service in the future than we've ever done yet.

Our organization grows better, our experience riper, our judgment keener, with every passing year; and we therefore become better qualified in every way to serve you with the highest degree of efficiency and mutual satisfaction.

Send in your orders. Bury us with 'em—you can't feaze us. We're right here, Johnny on the spot, ready to deliver the goods.

$25.00 PRIZE

Open to All Dealers

The Excelsior Supply Company offers a prize of $25.00 to the dealer who sends to this office, before February 15 next, the best letter telling (1) how to build up a successful retail motor cycle business, and (2) why every bicycle dealer and every automobile dealer should add motor cycles to his line.

Be sure that your letter covers these two points very carefully and thoroughly, but make them just as short as possible. Other things being equal, the shortest letter will be given the preference.

The letters will be judged with absolute impartiality on their merits alone and the Prize Letter will be published in these columns as soon after February 15 as we can reach a decision.

Address all letters to Letter Contest, Advertising Department, Excelsior Supply Company, 233-235-237 Randolph Street, Chicago.

SHOWING THE NEW VICTOR ANTI-SKIDS

EXTRA

Sensational Entry Into the Field of Anti-Skid Devices

At the very moment when a few near-sighted people were imagining that there was almost a corner in anti-skid devices, out comes a brand new design so much ahead of all the others that after you look it over you wonder how you ever got along with the old ones at all.

This new device is called the "Victor Anti-Skids," and it sure is the hottest thing in the way of a skid preventive that ever hit the pike. For it not only does twice as good work as anything previously on the market, but it lasts **more than twice as long.** This lasting quality is a big thing to the man who foots the bills—**cuts in two** his expense for anti-skid appliances—besides giving him far greater traction power and a feeling of security he never before enjoyed.

Of course the Excelsior Supply Company got hold of it at once. You never saw the Excelsior anywhere but at the head of the procession, did you? Well, **hardly.** The Excelsior buyers are mighty good judges of PEACHES and they haven't an inch of space in either stock rooms or warehouses for LEMONS.

These Victor Anti-Skids are a corking good proposition—money-savers for owners and business-builders for dealers. Those who are interested should write at once.

Lives of some queer men
remind us
How they'd gain by
thinking twice,
Instead of slipping, sliding, skidding,
On their own non-slip
device.